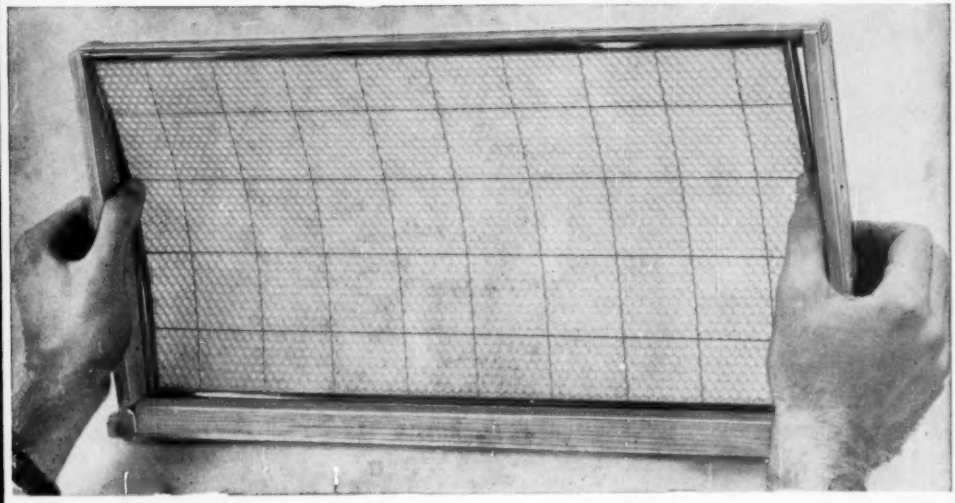
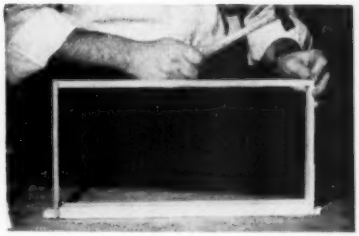
American Bee Journal

MAY, 1950 VOL. 90, NO. 5



THIRTY SECOND ASSEMBLY

Unbelievable Speed-- With DADANT'S GILT-4-EDGE FOUNDATION and LEWIS NAILLESS TOP BAR FRAME you can set up a frame and put in the foundation, ready for the hive, in thirty seconds.



No Wiring, No Embedding, WONDERFUL COMBS

Insert the side bars in the holding slots and extensions in the top bar (see picture); insert two nails in the bottom bar through bored holes (see picture); snap in the foundation (see top picture); and there you have it—ready to use. You can carry the foundation and frames in the flat in the seat of your car and put them up right by any hive where you need new frames with foundation—for that new swarm—for comb replacement—for your divides. This combination will save you time, money and labor. Try a sample of Gilt-4-Edge Foundation and a Lewis Nailless Top Bar Frame, ready to set up. Send 25 cents to cover cost of wrapping and mailing to either address.

G. B. LEWIS CO.
WATERTOWN, WISCONSIN

DADANT & SONS, Inc.
HAMILTON, ILLINOIS

Dadant's—Gilt-3-Edge Foundation, with top hooks (instead of top metal edge) will also fit any frame with a wedge in the top bar and slotted bottombar. The Lewis Nailless Top Bar Frame can also be used with any other foundation.

HIVES and SUPERS

Quality, the finest.

Lumber full thickness, clear, soft pine.

Aluminum for covers and frame rests. Rigid inner covers for long service included.

Triple lock-corner frames. Price low. Write for catalog and prices.

• • •

The A. I. Root Company
OF IOWA
COUNCIL BLUFFS, IOWA

PACKAGE BEES

With Carefully Produced

3-Banded Italian Queens

	2-lb. Pkg. With Queen	3-lb.Pkg. With Queen
1-11	$3.00	$3.75
12 or more	2.75	3.50

Queens, $ .90 each; 12 or more $ .85 each.

No disease; safe arrival and satisfaction guaranteed.

JOHN C. HOGG
TIFTON, GEORGIA

Treat Your Hives With

CUPRINOL® STOPS ROT

Applied by brush, spray or dip to the bare wood, Cuprinol will greatly lengthen the life of your hives by stopping rot. May be painted over. Does not offend bees. At hardware, paint and lumber dealers or direct. $3.90 gal.; $1.45 qt. Check or money order. No C.O.D.'s.

CUPRINOL Division, Darworth Inc.
61 Maple St. Simsbury, Conn.

DARK THREE-BANDED ITALIANS

Bees and Queens for 1950—We are state inspected, and guarantee live delivery and complete satisfaction.

	Lots-1 to 9	Lots-10 or more
2-lb. pkg. with queen	$3.25	$3.10
3-lb. pkg. with queen	4.00	3.75
Extra queen	1.00	.85

A. M. PEACH Baldwyn, Miss.

FOR BETTER BEEKEEPING USE DADANT'S FOUNDATION

looks good . . .

tastes good

This is the message every HA Honey Jar gives to consumers.

They're glistening, easy to pack visual salesmen.

Hazel-Atlas Glass Company
Wheeling, West Virginia

ITALIAN PACKAGE BEES AND QUEENS 1950

	2-lbs. of bees with queen	3-lbs. of bees with queen
1 to 5 Packages	$3.40	$4.30
6 to 23 Packages	3.10	4.00
24 and over	2.80	3.80

GIRARDEAU APIARIES Tifton, Georgia

Package Bees and Queens : Bright 3-Banded Italians

NONE BETTER

We guarantee Safe Arrival. Packages F. O. B. Queens Prepaid.

	Queens	Package Bees with Queens 2-lbs.	3-lbs.
1 to 24	$1.10	$3.50	$4.50
25 to 99	1.00	3.25	4.25
100 up	.90	3.00	3.80

Each additional pound of bees $1.00

TAYLOR APIARIES Box 249, Luverne, Alabama

Don't miss reading the Classified Ads

LITTLE & MOORE APIARIES
ORIGINALLY
LITTLE'S APIARIES
The JOHN M. DAVIS
STRAIN Italian Queens

Guaranteed to please or money refunded.

	April 1 to June 1	June 1 to Nov. 15
1 to 10,	$1.20	$1.50
10 to 100,	1.19	.90

LITTLE & MOORE APIARIES
SHELBYVILLE, TENNESSEE

WANTED Thousands of Rabbits and other Small Stock, Poultry and Birds. Let
STANDARD RABBIT & PET JOURNAL
Bring you the Monthly News of Rabbit, Cavy, Small Stock, Poultry, Birds and Other Pets.
STANDARD RABBIT AND PET JOURNAL
BOX 251 MILTON, PA.

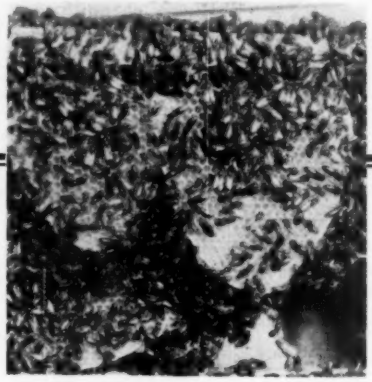
BE SURE
You Buy the Best
Book your package orders NOW!
BLUE RIBBON ITALIAN BEES AND QUEENS
FOSTER APIARIES
COLUSA, CALIFORNIA

Bees & Queens
QUALITY FINE
PRICE IN LINE
Write
J. F. McVAY, Jackson, Ala.

GLASS AND TIN CONTAINERS
5-lb. glass jars, white caps, carton of 6 $.58
3-lb. glass jars, white caps, carton of 12 .68
2-lb. glass jars, white caps, carton of 12 .62
1-lb. glass jars, white caps, carton of 24 .90
Order 25cs. glass 8c per carton less than list price. 100 cartons 10c less. Write for complete list and quantity prices on tin, modernistic glass, paper supplies, sections, foundation and other items.
ROSCOE F. WIXSON
DUNDEE, NEW YORK

We offer you 48 years of experience in the rearing of Quality Queens
MOTT'S STRAIN, THREE BANDED
Italians
PRICES UNTIL MAY 25—1 to 6, 95c each; More than 6, 90c each.
Try them for service—No disease.
C. G. Ellison & Sons BELTON, S. C.

A CONSTANT MARKET FOR YOUR BEESWAX
DADANT'S, Hamilton, Illinois



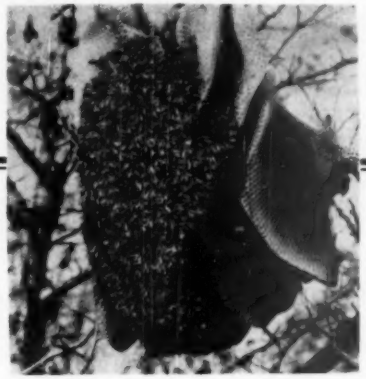
Contents

Editorial 214, 217, 218, 227
Can Government Programs Replace Individual Initiative?—S. R. Smith 212
Comb Honey Need Not Be Difficult—Robert M. Mead 215
The Commercial Aspects of Pollination—Milton Stricker 216
Pollination—A Half Century Review—Roy A. Grout 219
Discussion—How and when should queens be introduced? 221
Swarming—M. H. Haydak 222
Spring Feeding Pollen Supplement—H. A. Schaefer 224
The Origin and Evolution of the Honey Bee. Part I—Solitary Wasps and Their Ancestry —Dr. Melville H. Hatch 226
Advice to Beginners—Frank E. McLaughlin 229
The Cover Winner 230
Page Break Winner 231
The ABBA Testing Project—J. F. McVay 234
American Honey Institute 249
All Around the Bee Yard—G. H. Cale 250
The Federation 251
Previews and Events 252
Crop and Market—M. G. Dadant 253
Postscript—Frank C. Pellett 254

Volume 90, No. 5 May, 1950

The American Bee Journal
HAMILTON, ILLINOIS
Editor—G. H. Cale
Associate Editors—M. G. Dadant, Frank C. Pellett, Roy A. Grout
Managing Editor—Adelaide Fraser

Published monthly at Hamilton, Illinois. Entered as second class matter at the Postoffice Hamilton, Illinois; In the United States, Canada and Mexico, $2.00 a year; two years $3.00; three years $4.00. Foreign $2.50 a year; two years $4.00 three years $5.50; Subscription stopped at expiration date printed on wrapper.



Ad Index

Aeppler Co., C. W. 245, 253
Alabama Apiaries 235
Amber Laboratories, Inc. 241
American Rabbit Journal 234
Anderson & Co., B. A. 246
Anderson, O. K. 239
Arnouville, Oscar 234
Australasian Beekeeper 247
Baker Apiaries, C. W. 238
Bayou Bee Co. 234
Beekeepers Magazine 235
Bennett Bee Farms 246
Berry & Sons, M. C. Inside back cover
Bessonet Bee Co. 210
Blue Bonnet Apiaries 211
Bordelon Apiaries, B. J. 211
Bordelon Apiaries, E. J. 236
Calvert Apiaries 246
Cellulo Co. 247
Cherokee Bee Co. 237
Coffey Apiaries 211
Corona, J. P. 210
Cuprinol Division, Darworth, Inc. 207
Dadant & Sons, Inside front cover, 209, 210, 241, 247.
Daniels Apiaries 232
Davis, Thos. S. 238
Dotson's Apiaries 209
Ducote, Alvin J. 239
Dupuis Apiaries 235
Ellison & Sons, C. G. 208
Flowers Bee Co. 246
Forehand, Huber 239
Forehand & Sons, W. J. 247
Foster Apiaries 208
Garon Bee Co. 241
Gear Apiaries, Winfield 210
Girardeau Apiaries 207
Gooch Apiaries 239
Gulf Coast Bee Co. 239
Haarmann, Harry M. 246
Hale Pub. Co. 211
Hann, Albert G. 238
Harper, Carlus T. 235
Hazel-Atlas Glass Co. 207
Hendrix, J. W. 235
Hogg, John C. 207
Homan Bros. 246
Homan, Farris 239
Honey Sales Co. 239
Hummer & Sons, Geo. A. 210
Hutchison Mfg. Co. 238
Iowa Beekeepers Association 238
Irick, F. O. 234
Jackson Apiaries 243
Jensen's Apiaries 242
Johnson Co., Carl E. 209
Kelley Co., Walter T. ..... 246, Inside back cover.
Koehnen's Apiaries 247
Lewis Co., G. B. Inside front cover
Little & Moore Apiaries 208
Lohman Bee Co. 239
Lotz Co., August 232
Lucedale Apiaries 237
Marshfield Mfg. Co. 243
McCord Mfg. Co. 210
McFarling, Raymond 234
McVay, J. F. 208
Merrill Bee Co. 236
Michigan Bee & Farm Supply Co. 246
Miller, John G. 236
Mitchell's Apiaries 238
Modern Beekeeping 239
Morrison, F. E. 235
Muth Co., F. W. 237
Nance, Troy 209
Neises Co. 211
Peach, A. M. 207
Plant, W. E. 236
Plauche Bee Farm 234
Puett Co. 233
Rich Honey Farms 210
Richard, Homer W. 246
Rio Grande Apiaries 238
Rocke Apiaries 239
Root Co., A. I. ..... 211, Back cover
Root Co. of Chicago, A. I. 237
Root Co. of Iowa, A. I. 207
Roseview Gardens and Apiaries 238
Rosaman & Long 241
Rusch & Son Co., A. H. 239
Shackelford, John S. 238
Southland Apiaries 209
Spears' Apiaries 238
Standard Rabbit & Pet Journal 208
Stoller Honey Farms 210
Stover Apiaries 241
Sunkist Bee Co. 236
Superior Honey Co. 242
Taylor Apiaries 207
Victor Apiaries 237
Walker, Eugene 211
Weaver Apiaries 247
Weaver, Howard 239
West, M. C. 209
Western Canadian Beekeeper 210
White Pine Bee Farm 235
Wicht Apiaries 247
Wilde Honey Farm 235
Winslett, D. T. 236
Wixson, Roscoe F. 208
Woodman Co., A. G. 247
York Bee Co. 233

G. B. Lewis Wooden Goods!

DADANT'S WORLD FAMOUS CRIMP-WIRED FOUNDATION—Their 85 years' experiences is your safeguard. Catalogue on request.

DOTSON'S APIARIES

3059 W. Roxboro Rd. N. E., Atlanta, Georgia

Limited Number Select Italians

QUEENS

Personally reared and selected by

M. C. WEST

DAVIS, CALIFORNIA

Dovetailing Machine

FOR MAKING BEE HIVES AND SUPERS. NOW A SIZE FOR EVERY BEEKEEPER'S SHOP. DETAILS ON REQUEST.

Carl E. Johnson Co.

1887 GREGORY AVENUE
LINCOLN PARK 25, MICHIGAN

Caucasians — Italians

TROY H. NANCE

3764 Jeffrey Avenue
SACRAMENTO, CALIFORNIA

Increase Your HONEY PRODUCTION

with our young, vigorous queens. Daughters of the tested strain of Italians, line bred for honey production. Priced at 65 cents each, one or 1,000.

Truckers—we have packages for May and June priced right

SOUTHLAND APIARIES

BALL, LOUISIANA

Phone
Alexandria Exchange 23293.
Western Union, Alexandria, La.

Are You Losing Beeswax?

We render old combs, cappings, and slumgum for beekeepers. Our steam wax presses get every available ounce of wax out of this material. Send for terms.

DADANT & SONS, Inc.

HAMILTON, ILLINOIS

The Rich Honey Farms

Jeanerette, Louisiana

Leather Italian or Caucasian Queens and Bees

Dadant's Starline Hybrid Queens Produced by Rich Honey Farms

A fine, gentle, non-swarming, resistant strain of superior gathering ability.

		May 20
1-24	$1.40	$1.10
25-up	1.30	1.00

For packages with Starline Hybrid queens add 25c per package. For queenless packages, deduct price of queen. Queens shipped clipped, painted and air mailed at no extra cost.

Deduct 25c per package after May 10

Extra Heavy Packages — **Positively No Drones**

Breeding stock from the highest producing gentle, non-swarming strains available.

ITALIAN OR CAUCASIAN

		May 20	2-lb. pkg.	3-lb. pkg.	4-lb. pkg.
	Queens				
1-24	$1.15	$ .85	$3.50	$4.50	$5.25
25 up	1.05	.75	3.00	4.00	4.75

Just Off the Press QUEEN REARING

A NEW BOOK ON AN IMPORTANT SUBJECT

Authors—H. H. Laidlaw, Jr. and J. E. Eckert

It combines all the scientific knowledge on bee breeding with a clear explanation of the practical methods of rearing queens both commercially and at home.
160 pages—60 illustrations—substantial cloth binding

Price $2.50 Postpaid

DADANT & SONS, Inc. — Hamilton, Illinois

STOLLER *Slip-on* FRAMESPACER

LESS WORK
MORE PROFITS

Now used everywhere as essential equipment. Sixteen styles to fit any standard frame. Write for details, prices.

STOLLER Honey Farms LATTY, OHIO

FRAME-GRIP—SEND NOW!

This light modern tool is for easy handling and removal of frames from the bee hive. Thousands of satisfied customers have proven its worth. $3.00 plus 18c postage fee.

McCORD MFG. CO.

Rt. 2, Box 866, San Jose, California

PACKAGE BEES — ITALIAN QUEENS

	2-lb. with queen	3-lb. with queen	4-lb. with queen	5-lb. with queen
1 to 99	$3.00	$3.90	$4.70	$5.30
100 up	2.75	3.75	4.40	5.00

QUEENS 90c each. Air mail postpaid. Clipped on request
No better quality at any price—Satisfaction guaranteed.

GEO. A. HUMMER & SONS,

Established 1892 — Prairie Point, Miss.

THREE-BANDED ITALIAN BEES & QUEENS FOR 1950

	1-10	11-25	25-up
2-lb. pkgs. with queen	$3.25	$3.00	$2.75
3-lb. pkgs. with queen	4.25	4.00	3.75

Extra queens 80 cents each

J. P. Corona

BOX 124 — KENNER, LOUISIANA

Packages BESSONET'S Queens

Sorry that we could not supply the demand during March and April, but we can accept more orders for May. Queens sent via Air Mail. Our prices for May are as follows:

Quantity	Queens	2-lb. Pkgs. with queens	3-lb. Pkgs. with queens
1-24	$ .90	$2.80	$3.75
25-up	.80	2.75	3.70

BESSONET BEE COMPANY, Donaldsonville, Louisiana

UNTESTED ITALIAN QUEENS

75c, 65c in 100 lots. Liberal discounts on large orders of package bees. Write for prices. Remember you cannot buy a better untested Italian queen anywhere at any price. All queens guaranteed.

Winfield Gear Apiaries

TEHAMA, CALIFORNIA

WESTERN CANADA BEEKEEPER

Subscription $1.50 per year, $2.25 two years, $3.00 three years. In combination with American Bee Journal $2.50 per year.

Timely topics on western Canadian beekeeping and all the news about Canada and Canadian markets. You cannot afford to be without the most up-to-date information in these days of great changes. Sample copy free. Address WESTERN CANADA BEEKEEPER, 211 Affleck Building, Winnipeg, Manitoba, Canada.

If you buy or sell advertise in ABJ

Allen Latham's Bee Book

200 pages crammed with facts about bees which you can find in no other book. Latham's secret for swarm control alone is worth many times the small cost. His chapter on "The Worker-Bee" is itself a masterpiece. What he says about bee behavior, hive construction, and wintering will open your eyes.

$2.95 Postpaid (in U. S. A.)

$3.95 IN CANADA

MAIL THIS COUPON NOW

HALE PUBLISHING COMPANY ABJ-5-50
724 N. Central Ave., Hapeville, Georgia

Please send me **Allen Latham's Bee Book**, First Edition, in cloth binding, postpaid. I enclose $2.95. ($3.95 in Canada).

Name .....

Address .....

City ..... Zone ..... State .....

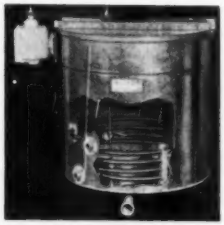


Illustration shows our heating tank with coil and power agitator.

Use *Neises Extracting Equipment* in Your Honey House

We manufacture Extractors, Clarifiers, Filters, Settling Tanks, Heating Tanks, and other equipment for extracting and bottling honey. Made in either galvanized iron or stainless steel.

For more information write to

THE NEISES CO.

Box 249 Marshfield, Wisconsin

ITALIAN PACKAGE BEES AND QUEENS

Write for quotations and particulars on our LINE-BRED ITALIANS noted for their prolificness, vigorousness, and vitality.

2-lb. package with queen	$2.75
3-lb. package with queen	3.75
4-lb. package with queen	4.50
5-lb. package with queen	5.50
Queens	1.00

B. J. BORDELON APIARIES, Moreauville, Louisiana

GLEANINGS IN BEE CULTURE

FEATURE ARTICLES—NEWS ITEMS
MONTHLY TALKS TO BEEKEEPERS

Subscription Rate
1 year, $2.00; 2 years, $3.00; 3 years, $4.00
in United States and Canada.

THE A. I. ROOT CO.
MEDINA, OHIO

BEAT THE EXPRESS RATES

WE DELIVER 400 OR MORE PACKAGES AT REASONABLE RATES.

CAUCASIAN — ITALIAN
HIGH-PRODUCING STOCK.

2-lb. packages with queen	$3.00
3-lb. packages with queen	3.75

THE COFFEY APIARIES
WHITSETT, TEXAS

Honey Bees

EUGENE WALKER
LIVE OAK, CALIFORNIA

Renew Your Subscription

Bees and Queens

Italian, Caucasian and Resistant

Over 30 years a shipper.
Send for FREE CIRCULARS.

Blue Bonnet Apiaries

Rt. 1, Box 23
WESLACO, TEXAS

AN ADEQUATE SUPPLY OF DADANT'S CRIMP-WIRED FOUNDATION will assure you fine combs. You are protected too, when you know it is made of pure beeswax—Dadant & Sons

Can Government Programs Replace Individual Initiative?

Taken from remarks by

S. R. SMITH

Director, Fruit and Vegetable Branch, Production and Marketing Administration, U. S. D. A., before the American Beekeeping Federation at Biloxi, Mississippi, January 18, 1950.

This is sound advice. Too many beekeepers already have said that, with Government price support, they intend to hold their honey for the Government to buy. It is easy to unload on the Government. To do it, however, without a serious effort to sell on the market, will be to sell the industry down the river. Price support for honey was granted only in the hope of stopping the rapid loss in the colonies available to agriculture. Let's keep faith with those who helped us stem the tide. Let's now step out and sell our honey and let's step out and make our bees available to agriculture for pollination. Let's keep the faith.—Ed.

This question was asked in good faith and undoubtedly in recognition of some people being of the opinion that the answer to the question is in the affirmative. We must all do everything possible to dissipate such thinking and attitude. Preservation of individual initiative is essential under government programs for the bee and honey industry. To do otherwise is to accept failure.

Let's keep that thought clearly before us as we move forward in the period ahead in adjusting ourselves to application of a price support program to the honey industry. Moreover, let us not unwittingly sell our individual initiative for selfish gains at the moment predicated on the philosophy of "A bird in the hand is worth two in the bush."

Congress provided price support for honey because it believed that such action was the only practical way to extend prompt assistance to beekeepers of this country and thereby help prevent a serious diminution of our bee population. It is equally clear that Congress had no thought of price support being the permanent solution to income problems of the beekeeper. The permanent solution will have to come through remuneration for the service of bees as pollinators. The price support interim is to provide the time and opportunity for the industry to get its own house in order. So—instead of Congress providing a substitute for individual and industry initiative—it in my opinion, has provided the basis of exercising that initiative to the maximum. In other words, the industry has been given a challenge.

Now, let's take a look at some of the more important phases of price support for honey. No one is very familiar with what the operating provisions of a price support program for honey should or shouldn't be. That's not difficult to understand, since there has never in the past been a mandatory price support program for honey. But, under provisions of the Agricultural Act of 1949, price support for honey has been made mandatory and it is high time for all of us to start getting familiar with what the operations of a honey price support program should be.

I'm sure we all have a lot of ideas on how such a program should be operated. The support program that is eventually developed will be a program that has resulted from the winnowing of all ideas submitted to us including those we can develop ourselves. There have been many suggestions already made to the De-

"Price support has not been made available simply on the basis of honey as honey; it has been made available to preserve bees in their function of pollinating crops."

partment, ranging from suggested support price levels to the amount of honey the Commodity Credit Corporation might be allowed to acquire under a support program.

One thing I myself would stress as we all approach this honey price support program is . . . caution. For example, I know that a certain percentage of producers are looking first at the idea of turning their honey over to the Government, though this should be the last resort instead of the first. If the honey industry looks at support through acquisition by the Commodity Credit Corporation as an end in itself, instead of as a means to an end, the industry will go backward instead of forward. It will undermine the marketing structure it has been struggling to build and thwart all forward steps taken toward developing advanced marketing procedures. It will, in my opinion, present a serious challenge to the cooperatives the members have worked so hard to get. My advice to you members of the honey industry is that you be wary as you study the best way to make use of the tool known as price support.

There are a lot of very basic things on which we must all come to some agreement before we have a solid honey price support program. To illustrate with one of the simpler ones,—what should the crop year for honey be? Should it be set up on a calendar year or on a marketing year basis? Quite a few opinions have been expressed for each. A number of persons have spoken for a crop year running from spring to spring—perhaps from April 1 to March 31—since the largest flow of honey starts in the spring and does not reach its peak until some time in July or August.

Others maintain the year should start with January 1 so they will know early in the year if they should buy more bees. Closely related to defining marketing season is the question of whether any assistance should be extended to 1949 crop and earlier honey. That is: Just what honey should be supported under the program? On the one hand, we have those who would restrict support to 1950-crop honey, meaning honey produced in 1950. On the other hand, there are those who feel that support should not be limited to honey produced in 1950, since much of the honey produced in 1949 will be marketed in 1950.

Debate over the level of parity at which the support should be set is still going on. The level, under provisions of the Act of 1949, may be set anywhere from 60 to 90 per cent of parity. Most of the recommendations the Department has received have been against too high a level, on the thesis that too high a support level would choke off too many outlets for honey as well as individual initiative.

There are an innumerable series of details, large and small, that must be attended to before a price support program can be set up to operate efficiently. In the case of honey—after attempting in the first place to determine the amount of honey that can be sold domestically each year and ascertaining to what extent supply exceeds demand—we have to arrive at a method of supporting the price of honey. A loan program has been discussed. So has a purchase-agreement program. In connection with a loan program, consideration must be given several factors. Among them are the questions of whether beekeepers generally could either pack their honey or have it packed for them; whether beekeepers could store the packed honey on their farms; what minimum quantities would be set up for loans; on what grade of honey loans might be granted; and at what per cent of the support level the loan level should be established. On a purchase-agreement type of program or a straight purchase operation, heed must be paid to the ability of the producer to pack and deliver to specification; of the amounts in which the honey should be delivered; the grades of honey to which purchases should be limited; whether the honey should be accepted only at designated points. Under either a loan, purchase or purchase-agreement program, determination should be made—before the program gets under way—as to how much honey the Commodity Credit Corporation might acquire.

There has been the question of price differentials; whether support should be confined to Grade A, include lesser grades at a discount, or perhaps include nontable grades. There is discussion of price differentials according to type and quality; price differentials based on floral sources or on geographical location.

There are a lot of things members of the honey industry must do themselves to get their own house in order before they look to people on the outside for help. A primary need—and all are aware of this—is to clean up the honey you are sending to market. The new proposed U. S. grades would not permit the marketing of some honey we have seen in some years past. Further, sharp practices generally will have to be abandoned. In other words, the honey industry has a long way to go in getting a more uniformly high quality honey to consumers.

Adulterating honey is no way to build up consumer preference. It's no way to increase per capita consumption, or even to maintain consumption at the level it now is. Blending honey to meet a price requirement may offer a temporary solution, or seem to offer a temporary solution of the problems confronting some of you. But it's a practice that will eventually put those who practice it out of business for the simple reason that there will be no customers.

All these things must be borne in mind as you consider your prospective honey price support program. You have to think in terms of quality

(Please turn to page 214)

How-to-do-it

Finding the Queen

The queen bee can be found most easily from ten in the morning until three in the afternoon. Little smoke should be used as it causes the bees to run. Look carefully over all the combs of the colony. The queen is likely to be on a comb with eggs and larvae.

The yellow Italian is conspicuous as her abdomen is not striped with bands like the workers. As she moves the workers back away from her or offer her food, and if she stops they form a circle around her.

Black queens are hard to find. The best way is to place a queen excluder under an empty hive body set on top of the hive and shake all bees from the combs into it. Drive the bees through the excluder with smoke and you will find the queen. If a two-story brood nest is used, place an excluder between the two bodies, wait a few days, and the body containing eggs will have the queen.

H. T. Starnes, Indiana.

(Continued from page 213)

and of quantity. And you cannot jump headlong at a price level. That particular angle requires a lot of good solid thinking. Humanly, and like producers of other commodities, you think first of a high level of support. But when you think along this line you must make sure you don't get your price structure so disjointed that you lose part of your market to competing products, and thus worsen rather than ameliorate your situation. You also have to think of a level that is a support level, and not a point so high that it will encourage unneeded production.

You should be thinking also of the intent of the Congress which afforded you the availability of price support. This point merits further emphasis. The clear understanding I have had is that price support has not been made available simply on the basis of honey as honey; it has been made available to preserve bees in their function of pollinating crops. My understanding of this point was considerably strengthened at the recent meeting in Washington of representatives of the honey industry, representatives of the Production and Marketing Administration, and some members of Congress.

I might add that I was disappointed by the attitude of some of the representatives of the honey industry as seeming too colored with the thought that the beekeeper has been given a divine mission, with the Government responsible, for compensating the beekeeper for his effort. And in their attitude, there did not appear to me to be enough recognition of the fact that beekeepers generally have failed in selling pollination to those needing that service.

I feel strongly that more and more heed must be paid by beekeepers to the function of pollination and getting that use of bees to contribute more heavily to their income in the future.

Representatives of the Government and of the industry are having considerable difficulty in seeing each other's point of view. I think that's a completely understandable situation, but I don't think it will continue unchanged. As we all work very closely together, we are going to be able to reconcile such differences as we may have now. I'm sure that we'll find our way, after a year of working together, to a program for 1951 that won't present us with near the labor pains we're having with this program for 1950.

As We See It

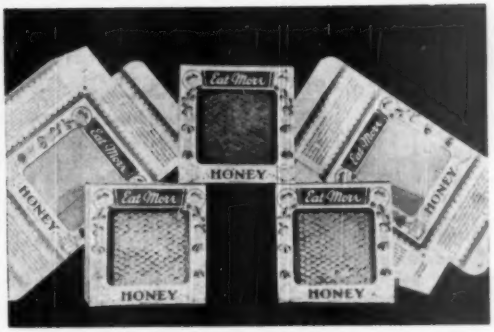
ACCENT ON HONEY PUBLICITY—FAIR EXHIBITS —The complacent high honey price years did something to our beekeeping economy, just as many another agricultural endeavor was affected. Certainly none of us want our product to become a "hot potato" as exemplified by the lowly spud. The sooner we carry our own load, rather than sit back and let our beneficent Uncle carry it, the sooner we solve our own problems. While price support may be argued for on the basis either of necessity or of "getting an even break with the other fellow," yet there are few of us who do not realize that deficits were never brought into black ink nor individual initiative encouraged by grabbing a handout which must invariably be charged back to us.

A case in point in neglected honey publicity is that of exhibits of honey and bee products at the various state and local fairs the country over. These can be, and many times are, a chore, both to the men in charge and to the exhibitors themselves. In arguing for such efforts we like to quote that famous saying of "Teddy" Roosevelt: "Every man owes a part of his time to the upbuilding of the industry in which he is engaged." To such leadership we owe the activity of Killion and his exhibitors at the Illinois State Fair with its $1,633.00 of premiums; and of the flowering state of Florida where the fellows simply pitch in to make this year's display just a little better than before. Not that there aren't others just as reserving of being held up as examples; there are.

But on the other side of the ledger are the many states and districts where the fairs go merrily on without a mention or often only a breath of an exhibit. Only desultory thinking and desultory action on the part of the beekeepers themselves can explain it.

Even at our best we can hardly hold a candle to the activity of the Britishers who not only consider the exhibits at the fairs as a duty and a pleasant junket, but have the officials thinking their way seriously enough to have a regularly appointed staff of expert fair judges, passing stringent exams before they get the chance to sniff and taste of the wares of the show bench.

Strange that states with relatively small production and few marketing problems if left alone in their markets seem so much more interested than the big producers. Tennessee, for instance, is a shining example. Their association even finances a traveling exhibit to go around with the traveling fair. And they teach beekeeping too, even though it might induce a few people to become experts and later divide the market with them. It's fun to them; not a chore.



Comb Honey

Need Not Be Difficult

by Robert M. Mead

IF you are having difficulties with your bee business, based on the production of extracted honey, it will at least pay you to make some study of possible outlets for comb and cut comb. The price support program will no doubt be of some help but the beekeeping industry in general cannot be considered healthy unless the beekeepers themselves continue to develop a market and produce honey in whatever form the market demands. I am not sure just how much comb honey the various markets can absorb, but I am sure that there is a much more active interest in it at present than there is in extracted. I am constantly hearing from city markets that would like to handle comb honey but do not find it available.

Production of comb honey does not need to be difficult, although in the past there has been a tendency to indulge in a great swapping around of bodies, supers and frames of brood; in short, enough manipulation to scare a man to death. Some of these methods no doubt had their good points and were introduced by men who were very successful in comb honey production. The point I would like to make is that good comb honey can be produced without excessive manipulation.

The basic requirement for the production of comb honey is a strong colony, plus a good honeyflow. A little more care is necessary in putting on supers so as not to get too many unfinished sections, but otherwise procedure may be almost the same as for the production of extracted honey.

On our first complete inspection in the spring any queens that need clipping are clipped, frames of honey or feed pails of sirup are given where the bees are short of stores, and an extra shallow super added if they show signs of being crowded. Most of them have wintered in either a story and a half or two stories. A second inspection trip is made ten days to two weeks later to look for the first swarm cells and to check on general colony condition. Additional room is given as soon as it is needed and even before it is needed. This room is an important factor in controlling early swarming and does not interfere in any way with comb honey production as will be shown later.

We try to time a third trip to coincide very nearly with the start of the main honeyflow and on this trip take along some comb honey supers. If the bees are storing new nectar freely we select those colonies that are very strong and not building cells and give them comb honey supers. I don't think there is any deep mystery in this; if you work enough bees you can soon tell which swarms are really going to town and which ones will just lonf along through the season. Comb honey supers are usually placed over the food chamber and under one shallow super that is already well filled with new nectar although they are not always placed in that exact position. If that sounds ambiguous, try to picture it this way: we have a booming colony just on the verge of being short of a place to store honey and we slap that comb honey super right into the ideal spot to fill their needs, and ours. Any excess extracting supers in the yard are given to colonies of weak or moderate strength.

No set rule is followed in giving additional comb honey supers. We make regular trips to inspect and cut cells on a twelve to fourteen-day routine and giving additional supers depends on the strength and duration of the flow. Usually the well-filled super is lifted up and the new one placed underneath but if there is any question about the length of the flow, and there often is, then the new super may be given on top, as a safety valve. I never hesitate to swap supers from one colony to another. You will find that some colonies work on sections much better than others and that some will do a much better job of finishing them off than others.

Any colony that shows a reluctance to work in sections is changed to extracted production for the season and a colony that does exceptionally nice work in finishing up its combs may be given several nearly finished supers to put the final touch on. In other words no chart or set rule is followed but constant adjustment is made during the season for colony condition and honeyflow conditions. These adjustments are so simple, however, that unless an excessive number of cells must be cut only a few minutes' time is required for each colony.

It is easier of course to produce all extracted honey and the bees will make more extracted on a pound basis than they will comb. The reason that we produce some comb honey and that you should at least give it some consideration is that there is a demand for it. Mere production, as with all extracted, does not give much satisfaction in the years when the price of extracted is so very low.

Vermont.

The demand for honey could not be filled if 2½% of the gross income from beekeeping were wisely expended each year for advertising.
Glenn O. Jones,
Sec'y-Treas., American Beekeeping Federation.

The Commercial Aspects of Pollination

by Milton Stricker

IT is with great interest that I follow the efforts of fellow beekeepers in other sections of the country as they try to sell the farmer on pollination. The farmer needs this service and the beekeeper can well supply it. Yet in certain areas the farmer has never before tried renting honey bees. Likewise many beekeepers have never had the occasion to supply bees for a "pollen chore."

The beekeeper may shower the farmer with literature, deluge him with sales talk, offer to take payment in the extra produce resulting from this service. But so often the outcome finds the beeman muttering that you must knock a farmer down three times before he will listen to reason. This statement is equally applicable to some beekeepers.

Fortunately, in this area, pollination service does not have to be sold "cold." There are many farmers who use this service consistently and are living examples to be quoted when selling a potential customer. Supplying bees for pollination in New Jersey is now a recognized branch of agriculture.

•

(Top left) Populous single-story colony ready to be moved.

(Center left) Poor grammar, but good advertising.

(Lower left) Single-story colonies in transit during cold weather—colonies are covered with metal covers.

(Lower right) Colony doing "greenhouse" pollination chore.

The fact that pollination has become a respectable and profitable form of livelihood is largely due to the efforts of one man—the late R. D. Barclay—who while still a student in college, lectured on pollination experiments and the findings of the horticulturists. In the early 1900's he was so intrigued by this new subject that his enthusiasm carried over in his talks to individual farmers. One day he was asked to demonstrate with his few backyard colonies. This was the small beginning of commercial pollination in this area. But it didn't stop there. Barclay went on to prove what he had said with demonstrations, and the painstaking building of a business that constistently offered populous colonies, prompt delivery, and dependable service. Now anyone who begins to offer bees for pollination unconsciously profits from the groundwork laid by this one man.

The farmer, like the beekeeper, is one of the last of the rugged individualists. He cannot be browbeaten or high pressured into believing that "those little bugs" are going to benefit his crop, especially as he has spent a lot of money killing objectionable insects. However, on the other side of this depressing picture is the fact that if he ever does become entirely convinced he will stay convinced.

Yes, in developing a pollination service it is hard to get started and

nothing will do as much as time and persistence. As time goes on and more natural pollinators are killed, the farmer will be forced to use some sort of pollination system. It may not include honey bees but I am hoping they will remain the most reliable method.

In the meantime, how to start such a business? Go on talking to those hard-shelled farmers, sooner or later (and it may be a long while later) they will try some of your colonies for pollination and then it is up to you to keep them steady customers.

Meanwhile look further for areas where it is easier to rent bees. You will be able to recognize such an area by the fact that intensive farming rather than extensive farming is the general rule. This will usually mean that land is more expensive, taxes are higher and a man must produce a large crop per acre to remain in business. Pollination will help him produce more. In such an area he learns that fact fast, or he soon becomes a disappointed spectator at his own tax sale.

In this type area where competition is keen there is a spirit of rivalry between farmers that works to the advantage of the beekeeper. Since bees seem to produce more for one farmer, another will not be outdone so he also will rent bees and often will take a few more colonies than the first.

In this sort of area look for newer and rarer crops being grown, these are ideal for pollination service and if they are benefited the beekeeper benefits too.

But you'll be able to work out a sales program of your own, in the same way you'll have to work out methods of servicing, and also a method of charging for your service. First figure the cost of your transportation to the crop to be pollinated. Remember for every haul into a field or orchard there will be a haul away

(Please turn to page 218)

How-to-do-it

Bee Gloves

To keep the sleeves of bee gloves up while shaking bees, I replace the small rubber band in the hem of the sleeve with a strip of ¼ inch elastic. The sleeves of worn-out gloves are cut off and sewn to new leather or rubberized gloves.

M. M. Moore, Iowa.

As We See It

PUBLIC INTEREST IN BEE PASTURE—A recent paper by R. Melville in the Kew Bulletin is of interest here because it calls attention to the public stake in the subject of pollination. The Kew Bulletin is the official publication of the Royal Botanical Gardens of England.

The paper states that many British beekeepers depend upon the limetree, which we call basswood in America, as their main source of surplus honey. Since there are a number of species of lime with an overlapping of their time of flowering, the honeyflow can be greatly extended by planting several varieties. The paper emphasizes the fact that by means of proper mixing of species by those responsible for planting of public streets, parks or other extensive areas, it will be possible to provide a honeyflow adequate enough to support a sufficient number of colonies to meet the local needs for pollination.

A list of 16 species of limes with flowering time from early June to the end of July is given to provide two months of honeyflow. Mention is made of the fact that bees rarely gather pollen from these trees and that **Tilia petiolaris** is not recommended because its nectar apparently is toxic to bees.

When such public institutions provide the leadership we can look forward to substantial improvement in our bee pasture. In this country the planting of thousands of miles of public highway offers a particularly valuable opportunity to provide long-time bee pasture. Once the officials realize that the public has a substantial interest, progress will be rapid.

THE BEE WORLD—We welcome the first issue of the Bee World under its new editor, Dr. Eva Crane. We need a vehicle for reviewing the world bee literature just as we have it in the magazine "Botanical Abstracts" for the plant world. The fact that the former editor, Annie D. Betts is continuing in her authoritative reviews will be of great value.

Two things are needed to ensure the success and growth of the Bee World idea. First, a willing corps of scientists and beekeepers to furnish the material, and secondly, a goodly number of subscribers to make the project financially feasible. We recommend the Bee World as having a worthy place in every beekeeper's library.

Address is Secretary Apis Club, The Way's End, Foxton, Royston, Herts, England and the annual fee is 12s 6d, or roughly $2.00. Remittance should be by International Money Order, obtainable at any postoffice.

Commercial Aspects of Pollination

(Continued from page 217)

from the crop, and this haul is often a longer one, since you will probably have to move completely out of the area to avoid spraying and dusting.

Often you will have quite a haul to move into an area where there is a honeyflow. Bear in mind that if crops to be pollinated generally offered a bumper honey crop there would probably be enough wild bees or other insects to offer free pollination. Never belittle your insect competitors, they are just as efficient as your honey bees and the farmer likes their service better than yours because it is free.

In figuring cost you will have to take into account that your bee equipment will not last as long as it might if used solely for the production of honey. Bottom boards and hive bodies wear out quickly when slammed around on trucks, and both must be in bee-tight condition for efficient traveling.

The equipment must be able to stand the gaff, and more than that **you must have a strain of bees that will do the same.** Your bee breeding will take a little different turn when you find you will have to breed your own strain for efficient pollinators, although as a general rule the best honey producers make good stock for pollination work. However, there are some other desirable traits needed, such as disease resistance. Don't forget your colonies can often become more interested in robbing out weak diseased colonies in the neighborhood than in the crop you brought them to pollinate.

You will need a bee that is bred to fly at low temperatures since the lower the temperature at which your bees will fly the better insurance the farmer has of getting a crop. Another requirement is a bee that is bred to bear up under the unnatural conditions encountered in pollination work. In the pollination of several crops with the same colonies there will be some demoralization of the bees. You will need a colony, or colonies that are not easily demoralized by adverse and unnatural beekeeping conditions.

You'll need reliable trucks for long and fast hauling. Time can often be spared for truck repair when servicing honey-gathering colonies but pollination customers cannot wait, as least you'll find they won't wait. Trucks should be able to climb through mud without getting stuck, four-wheel drive is excellent. There should also be some equipment for extricating mired vehicles, a motorized winch is good for this. There is an old saying, "If it is dry when you put bees in an orchard it will be wet when you take 'em out." But likely you will find it wet and muddy both times and you had better be equipped to get your truck loaded and away before spraying starts. To make matters worse or maybe better, during rainy weather when wild pollinators are loath to fly, you'll receive more orders.

You will find yourself spending time looking for areas that offer a bumper "recovery" flow. If you find a location that offers such, four seasons out of five, by all means seize it and use it. You will look southward too for wintering locations, not only because you will winter colonies more successfully in a slightly warmer area, but because there will be an earlier and bigger spring build-up.

But most of all you'll need more of that one thing that means more to success in any phase of beekeeping than any other. That one thing is an immunity to discouragement.

In the pollination game or gamble you will meet discouragement in all forms, and all of them very bad. Your bees will get poisoned, you'll encounter disease of all types, and there will be spring dwindling (try conquering this one). You'll meet dust, dirt, and mud; long hours of fatigue, you'll find sales resistance, cutthroat competition by fly-by-night outfits. You'll see the failure of some of your farmer customers, and sometimes you'll lose your shirt. You will often wonder why you ever got in such a business. You'll see unskilled industrial workers making more money than you.

You will face a million large and small discouragements, but as in all apicultural pursuits you will be paid in a way of life.

———

New Jersey.

As We See It

LET'S LOOK BEYOND THE END OF OUR NOSES—Quite a number of honey producers—too many to our liking—have stated they were holding their honey for the price support program. We do not know how many are actually planning on turning honey over to the Government or how many are holding for a better price on the open market.

In the light of other price-support programs, the honey producer cannot be criticized too severely for holding his honey for a better price on the open market. But we do criticize severely the producer who is making no effort to move his 1949 crop, and who is sitting on his enlarged posterior with full intention of letting the Government take his honey. In general, the honey market has been improving and most producers have had an opportunity to move honey at good prices.

Price support is just a prop for the industry. Congress granted us this distinction not because honey producers were poor or honey was selling below the cost of production, but because of the pollination services of honey bees. No one can tell how long we will have price support. But while we are favored with a better price for honey, we have the opportunity to build and improve our honey markets—to get back on our feet as an industry. Holding honey from a market which can dispose of it now is certainly a detriment to our marketing program.

Pollination—

A Half Century Review

by Roy A. Grout

At the turn of the present century, much was known about the structure of flowers and their pollination by insects, but such knowledge was in the hands of scientists and was not generally known or accepted.

Dr. Joseph Gotleib Kolreuter, in 1761, first pointed out that visits by insects were necessary for pollination of flowers. We find in Christian Konrad Sprengel a man who brought this branch of botany to a very high level when he published his book, "The Secret of Nature in the Form and Fertilization of Flowers Discovered," in 1793. After describing the manner in which more than 500 flowers were cross-pollinated by insects, he stated, "It seems that Nature is unwilling that any flower should be fertilized by its own pollen."

Thomas Andrew Knight, in 1799, and Charles Darwin, in 1862, further added to our knowledge of flower pollination. According to Dr. W. Trelease, Asa Gray reviewed Darwin's book and whimsically restated Nature's law as to pollination of flowers as follows: "Get fertilized, cross-fertilized if you can, self-fertilized if you must." Delpina, Axell, Hildebrand and others also contributed to our knowledge and, in 1873 Herman Muller published the first of three volumes which embraced an amazing number of individual observations on the visits of many thousands of insects to flowers. In 1902, Darwin published his book, "The Effect of Cross-and Self-Fertilization in the Vegetable Kingdom," and Dr. Paul Knuth, in 1906, published the first of his three important volumes entitled "The Handbook of Flower Pollination.

At the start of the century, then, we find our knowledge of flower pollination well established, but with little regard to its practical application. The reason for this was simply that we had no pollination problems, with the exception of the orchard fruits. In general, our populations of wild pollinating insects were ample, and set of fruit and seed was an accepted thing. Only a relatively few articles had appeared in the journals and these were concerned with the relation of beekeeping to fruit production.

It is possible to make the broad general statement that the first quarter of the century primarily stressed the problems related to the pollination of fruit, and that little regard was given to the part that honey bees played in the pollination and set of seed of the legumes and the vegetable seed crops. It is, of course, difficult to establish time periods in which special emphasis was placed on any particular class of products. For example, in 1900, an editorial in the American Bee Journal called attention to Kansas experiments in which honey bees had increased alfalfa seed production, and A. J. Cook stated that pollination was the best work performed by bees. Morley Pettit, in 1905, reported that honey bees were important to the pollination of alsike clover. R. F. Holterman, in 1910, showed that bees were beneficial to the fertilization of buckwheat; and L. H. Pammel and C. M. King, 1911, reported on pollination of red clover by honey bees. But, of the many reports that appeared, the great majority were concerned with the pollination of fruit crops.

Toward the end of the first quarter of the century, therefore, we find that fruit pollination problems had been pretty well studied, but the pollination of legume and vegetable seed crops was just beginning to be recognized and few or no field results had been obtained. In his summary to a comprehensive thesis on pollination in 1928, E. J. Dyce made the following statements which sum up our information up to that time:

Honey bees are more important in their office of cross-pollination than as honey gatherers.

Spraying fruit trees in full bloom is extremely disastrous to the honey bee, and injurious to the blossoms with less set of fruit.

Bees unquestionably increase the set of fruit.

It is advisable to use from one to four colonies per acre for pollination purposes.

Bees increase the number of bushels per acre of alsike, red clover, sweet clover, and alfalfa seed.

During the first part of our half century, the publication of a number of books had their influence on pollination. The first was John H. Lovell's book "The Flower and the Bee—Plant Life and Pollination," in 1918. In 1920, Frank C. Pellett

(Please turn to next page)

Shorthorn cattle on clover pasture in Indiana. Pollination is the basis of successful agriculture. (Photo courtesy J. C. Allen and Son, West Lafayette, Indiana).

brought forth his comprehensive book, "American Honey Plants," and, in 1926, John H. Lovell published a similar work, "Honey Plants of North America." Also of importance to beekeeping were three major books: "ABC and XYZ of Bee Culture" which the Roots continue to revise and enlarge, "Langstroth on the Hive and the Honeybee" which the Dadants revised extensively up to 1922, and "Beekeeping," by E. F. Phillips, published in 1919 and revised in 1928.

It was in the first quarter of the century that apiculturists and researchers made important contributions to the behavior of adult bees. Gaston Bonnier, in 1906, published his important studies on the activities of field bees, and G. A. Rosche, in 1925, began to report results of his experiments on the division of labor. In the meantime, G. M. Doolittle, Arthur C. Miller, Allen Latham, C. P. Dadant, Annie D. Betts, E. R. Root, and others were contributing in various ways to our knowledge of the behavior of adult honey bees. In 1920, Karl von Frisch first published his work on the "language" of bees pointing out how bees communicate with each other that they have found a source of food and something concerning its source. O. W. Park verified Frisch's report, in 1923, and began a long series of publications on the field activities of honey bees in the collection of nectar, pollen, and water. Also contributing to our knowledge, which is the basis for our theoretical approach to pollination today, were R. L. Parker, Anton Minderhoud, Bruce Lineburg, C. C. Miller, C. L. Farrar, C. N. Buzzard, C. G. Butler, A. E. Lundie, J. J. Davis, Frank E. Todd, and others.

The above is written to point out to the reader that, in a very major way, our present day knowledge of the behavior of the pollinating bee was established during the half century with which we are concerned. And much still remains to be learned concerning the behavior of field bees and the accomplishment of pollination as an agricultural practice.

From 1925 almost up to the present time we find the experimental work on the pollination problem was lead by researchers and individuals throughout the states. In 1925, E.R. DeOng, an assistant entomologist of the California Experiment Station, published a circular on the honey bee as a pollenizer, and H. F. Dietz published an Indiana report on the relation of bees to the pollination of crops. E. Oertel, while an assistant at Cornell University, wrote an article for Gleanings, in 1926, which dealt with the constancy of bees to a species of plants, and Frank E. Todd, while associated with the California State Department of Agriculture, reported that honey bees are the chief pollinating agents, and in some cases are absolutely necessary for the pollination of almonds, chestnuts, a very large number of legumes, cucumbers, melons, squash, cranberry, blackberry, gooseberry, grape, strawberry, apple, cherry, peach, pear, plum, and prune, and concluded, "To this formidable list many more can be added."

R. H. Kelty, Michigan, E. F. Phillips, Cornell University, and Ray Hutson, New Jersey, published the bulletins on fruit pollination, and G. H. Cale and H. D. Hootman collaborated in producing the bulletin "Busy Bees Bring Bending Branches." And, in 1931, C. L. Farrar published results of a two-season comparison of overwintered colonies with package-bee colonies for pollination purposes in Massachusetts.

By 1932, new emphasis was being given to the problems of pollination. R. S. Filmer, of New Jersey, had reported on brood area and colony size as factors in the activity of pollination units, and A. W. Woodrow, while at Cornell University, made a comparison of the value of different colonies of bees. Dr. Gotze and W. Jordi, in the Bee World, and R. G. Richmond, in a Colorado bulletin, published reports on the pollination of red clover, while C. R. Megee and R. H. Kelty, in Michigan, also brought forth evidence that honey bees were important to the production of clover and alfalfa seed. And, in cooperation with the Division of Bee Culture, G. L. Philp and Geo. H. Vansell published a California Extension Circular on honey-bee pollination of deciduous fruits.

But the emphasis of 1932, as shown by the amount of material published, declined until the recent World War II period. E. F. Phillips, following his trip abroad, reported in 1933 and later on the Russian experiments in collective farming, and of the efforts to restore beekeeping in that country. J. N. Martin, of Iowa, told of his studies on red clover pollination and also reported Russian results, and F. R. Shaw and A. I. Bourne published information on the pollination of onions and blueberries in New Jersey. And, in 1940, C. A. Jamieson and J. H. Armstrong, of Canada, stated that the cross-pollination of red clover was just as necessary to obtain a successful seed crop as good cultural practices.

W. E. Dunham, of Ohio State University, was foremost in reporting results of pollination experiments, from 1938 to the war years, which showed that honey bees were an important factor in the seed production of alsike clover, red clover, and white Dutch clover. He concurred with other researchers that the pollination service of honey bees was 10 to 15 times the value of the honey and beeswax and, during the war period, Dunham published the leaflet "Honey Bees Increase Clover Seed Production 15 Times." Another important leaflet which was given wide distribution was "Alfalfa Seed Production Requires Pollination by Bees," by G. F. Knowlton and C. J. Sorenson, of Utah State Agricultural College in cooperation with the U. S. Department of Agriculture, published in 1947.

A recent publication on bees and the pollination problem, which should be mentioned, is Circular No. 75, by R. L. Webster, H. S. Telford, and Herman F. Menke, issued in 1949 by the State College of Washington.

It was during the period of World War II that this country was aroused to the fact that we had a serious legume-seed shortage. A survey, in 1944, showed that we had set a booby trap for ourselves in war food production by failing to save enough alfalfa, red clover, alsike, sweet clover, Ladino clover, and grass seeds. John W. Nicholson chairman of the Government's Seed Task Force Committee, reported that the shortage of legume seeds could result in international disaster. Recognizing this situation, Congress provided funds for incentive payments of $3.50 per acre for harvesting legume seed crops, and appropriated an additional $12,500,000 to make incentive payments on poundage of clean seed harvested. These steps did not materially increase supplies of these seeds and, in 1949, the Department of Agriculture announced a price support program for 32 kinds of grass and legume seeds to encourage production. At the end of the present half century, however, the Bureau of Agricultural Economics announced that supplies of several of the legume seeds were the lowest on record.

In 1947, Jas. I. Hambleton announced in the journals that the gradual decline in the per-acre pro-

(Please turn to page 240)

Discussion

How and when should queens be introduced?

JULIUS LYNSE, Wisconsin

Chas. B. Miles,
Iowa . . . .

A good queen is the keystone of a colony, but how to keep a good queen in every hive is a problem. Sometimes a colony will become queenless for no apparent reason and if this happens in early spring when the weather is uncertain for shipping queens, perhaps the best solution is to unite it with another colony, preferably a weak one with a queen.

I have made increase each year for a number of years and my method involves buying and introducing queens for the increase. As my best colonies near swarming strength, I take one or two frames of brood and bees from each one. This brood for increase is placed above an excluder on my best colonies for a few days before it is taken, so that there will be no eggs or young larvae from which to start queen cells. (However, I have been forced to use brood fresh out of the brood nest with very good results, so I think introducing queens is about ninety per cent luck.) The brood and bees for increase is then divided and placed in hives; about two frames of brood and bees with a comb or two of honey per hive, and the entrances are contracted.

In the meantime, I have ordered queens which are shipped air mail to arrive when the brood is ready for them. When the queens arrive, they are placed in the hives in the shipping cages in which they came. I usually remove the paper over the candy and dig out a little of it to give the bees a good start. With luck, the queen will be laying her second comb of eggs eight days later when I take my first look. Often there is already young larvae.

• • • •

Wayne Keller,
Nebraska . . . .

First, for practical purposes it should be understood what type of requeening is contemplated. One may have a breeder queen with few attendants, virgin queens of his own rearing, or mail-order queens for general requeening.

Breeder Queen Introduction

A valuable breeder-queen may be placed in a bee-tight, solidly nailed and stapled hive with several combs of emerging brood until the bee force is adequate, after which a small hive with little honey to defend and a small entrance may be given them. The greatest dangers of this method are ANTS and ROBBER BEES. In cold weather the hive must be kept in a warm room to assure a good emergence of young bees. One can pick best combs of emerging brood from several hives, being certain that **not one bee of any age** is put into the breeder's hive with the emerging bees. While the gradual introduction cages may sometimes be used, they are not certain enough for a breeder.

Virgin Queen Introduction

During summer conditions a hive must be queenless at least 24 hours before introducing a virgin. Introducing virgins over a day or two of age should not be attempted. Full colonies that have been queenless for some time should be given ripe cells repeatedly so that they will accept and start a new queen when conditions are favorable.

Mail Order Introduction for Requeening

Never introduce by the so-called "sure" methods, such as smoking, shaking, etc. There are times and conditions under which even these methods may be successful. The important conditions are either rapid honey storage after all robbing has ceased, or complete quiescence after bees have ceased foraging. These are difficult to attain, and more difficult to insure after starting to introduce.

The best time to requeen is when you desire the increase, or when you want to lose the production of old queens—looking forward to a certain season of increased production from the young. Supposing this to be understood, we are not to choose the ideal time for queen **acceptance**, but are to choose the best method of introduction under any conditions for the sake of greater economy by timing our work and that of the bees.

My method is to leave all hives closed, not attempting to find queens. Divide them quickly, making certain that divisions are stocked well enough so that robbing will not start. When the queens come, place one in each hive that has queen cells. Put candy end up, concealing surface of cage from the bees. Remove the cardboard from candy end and leave candy intact in proportion to strength of the colony.

• • • •

Julius Lysne,
Wisconsin . . . .

As queens may snuff out at any time, requeening is necessary from April to late September. Requeening is important as a means of swarm control and may be practiced to advantage during early June. This is especially true in comb honey production. In this section, overwintered colonies are very apt to swarm due to supersedure so when queen cells appear it is best to destroy them as well as the queen and replace them with a ripe queen cell. Or if each colony is of good stock, the queen and all queen cells but the largest and best one can be destroyed. Swarm cells produce the best of queens, but the indiscriminate use of them does tend to increase swarming. Queens should be purchased from breeders from time to time to give the stock new blood.

In August each colony should be examined for drone layers. If the sealed brood has marked convex cappings it is certain that the queen is exhausted and must be replaced. Simply find and kill the queen and the bees will rear a new queen in time to raise a large force of bees before winter.

Should new stock be desired, very good success can be had by requeening in late September. The usual cage method will work out very well. Do not disturb the colony for at least a week.

In early spring each colony should be inspected to determine the quality of the queen. If requeening is done every year a good queen is usually present.

DISCUSSIONS TO COME—

Thanks to this month's contributors to this page. The next few questions will be good ones. The beekeeper's busiest season is coming up, but we hope you will take a few minutes off to write your ideas on these subjects.

JUNE—Do you think the two-queen system increases production profitably?—G. H. Cale, Jr., Illinois.

JULY—What have you found to be your most time-saving short cuts and devices for managing bees?—Steve Taber, Wisconsin, Lloyd Klopfenstein, North Dakota.

Swarming*

by M. H. Haydak

Division of Entomology and Economic Zoology, University of Minnesota, University Farm, St. Paul, Minnesota.

SWARMING is the most joyous and mysterious phenomenon in the life of the honey bee. If you have seen and heard it once you'll never forget the feverish, excited rush of bees from the hive, their joyous whirling and dancing in the air while forming a cloud which slowly moves to a certain point where the bees begin to form a cluster. You cannot mistake the ringing noise of an issuing swarm for any other hum or song. This is a thrilling experience which is the "must" for every beekeeper to observe.

In spite of all this poetry, swarming is the greatest nuisance that occurs in the life of every man keeping bees. A great number of books and articles have been written on this subject, and still there are many questions left unsolved.

Swarming is a natural phenomenon in the life of bees. One reads a statement to the effect that if it were not for swarming, there would be no honey bees in the world today. Therefore in order to control successfully a habit so deeply seated we should clearly understand the sequence of events that lead to swarming. By fitting together all the pieces of information that we now have available, we can obtain quite a clear picture of what is happening in any overwintered colony in the spring.

Early in the season the bees still are in a relatively compact cluster in the hive. As the season advances, the bees begin to occupy more and more space. At any given temperature there is a certain number of bees per unit area present on the comb with brood. As the temperature becomes stable, the number of bees per unit area is also stabilized. In the spring there are 27-35 bees per area of 100 cells. Because the young bees have a tendency to seek and remain in the warmest place, the newly emerged bees remain on the comb and the older bees have to move out. Experiments with marked bees show that bees 1-3 days old remain on the brood comb, while 4-10 day old bees are displaced. However, these bees, because they also like warmth, do not move far from the brood comb, but remain on the combs adjacent to the brood combs, where they begin to clean cells. When the queen comes to such a comb, she starts to lay immediately and the young displaced bees begin to feed her and the larvae that subsequently appear. If the queen does not find the cells ready for her, she returns to the brood nest. Therefore the egg-laying activity of the queen is governed by the displaced nurse bees and she can deposit only as many eggs as there are cells prepared by the nurse bees for her. The warmer the brood nest, the greater number of younger bees will be displaced. A colder brood nest tends to diminish this displacement. Knowing the density of bees, the number of sealed brood cells, one can theoretically compute the number of displaced bees in the future, i.e. the space they will occupy and prepare for egg laying.

In a strong colony, sooner or later, there will be a disproportion between the number of the displaced nurse bees and the space available for egg deposition. The jobless, displaced nurse bees become excited. The circle around the queen is formed in a very close proximity to her, and the bees in the circle become very excited, shaking their abdomens. They constantly and persistently offer food to the queen, even pushing their heads under her head and thorax. Sometimes the queen, while resting, places her head inside a cell, as if trying to escape from the surrounding bees. The latter, however, increase in number and force the queen to start egg laying. The number of bees in the circle increases to 22 or more bees, the latter constantly offering food to the queen. Those in front of the queen sometimes jump on top of her and perform a shaking dance ("joy dance") lasting 3-4 seconds. Thus the queen is chased throughout the hive. As soon as the queen is around the swarm cells the bees do not bother her. She approaches the swarm cups and deposits eggs in them. As soon as the queen larvae appear the displaced nurse bees can lavishly supply them with the food. At the same time the bees stop feeding the queen. The latter feeds herself on honey, deposits less eggs and the size of her abdomen diminishes. This decrease in egg laying results in further increase in the number of jobless nurse bees. The latter fill out all the available space in the hive, sometimes even hanging outside—and those are the bees that leave with the swarm, "the active swarm bees." At the time of swarming the queen is actually chased out of the hive. The age of bees coming out with the swarm is mostly between 3 to 21 days. Field bees continue to work and it was observed that the number of the field bees coming in and leaving the hive is about the same before and after swarming. Both external (honey-flow, weather, etc.) and internal (egg laying, type of brood nest, etc.) factors have a great influence on swarming and may accelerate, slow down, or completely stop the preparation for swarming.

So here you have—the ever present and always ruthless law of supply and demand. The bees have found their solution for it. It is the most logical solution in nature. However, in modern beekeeping, when man tries to become an employer of

* Paper No. 696 Miscellaneous Journal Series, Minnesota Agricultural Experiment Station.

his winged friends, he inherits all the difficulties going together with the problem of unemployment. A good "employer," who foresees the coming difficulty and tries to alleviate the symptoms before they become acute, usually wins—the bees in full force will continue to work for him. Otherwise they will leave, looking for better conditions.

Whatever is done to give work to the unemployed displaced nurse bees will postpone, sometimes even prevent swarming. Because 80-90% of bees leaving the hive with a swarm are proved to be displaced jobless nurse bees, or "the active swarm bees," a method for their separation from the parent colony that has already built swarm cells was suggested and actually performed by Taranov. All bees are shaken from the combs at a distance of 3 feet from the entrance in front of a platform rising about 45 degrees toward the hive to a distance of 4 inches from the hive. Field bees and employed bees return to the hive while the swarm bees cluster under the platform. The old queen from the parent colony is added to these bees, which are placed in a new hive and begin to work immediately. As with a normal swarm, such bees do not return to the original place even if their new hive is placed alongside the parent colony.

As a routine, the work with swarm prevention should be started early in the spring. Usually colonies are wintered in two-story hives. The development of the colony in the spring starts in the upper story, which may be filled with the brood and bees while the lower story is almost empty. Consequently the first step in swarm prevention is to switch the two hive bodies, placing the lower one on top and the upper story underneath, thus providing more room for the bees to expand. A week or two later, depending on the development of the colony, the hive bodies may be switched again because at that time there will be many empty cells in the lower body. Such reversing may continue until both stories are fully occupied by the brood, the bees and the stores. After that the beekeeper may add another super and continue to reverse the hive bodies weekly, always placing the lower one on the top, until all the stories are fully occupied. When the three-story brood nest is completely filled, the beekeeper may provide additional space by adding as many supers as needed over a queen excluder or directly over the brood nest. At the same time he should continue to switch the hive bodies of the brood nest and to destroy the swarm cells as long as they are built.

Instead of adding the third hive body on top, one can Demaree the colony. In this case the queen cells built in the upper two stories should be destroyed a week later and the process of Demareeing repeated two weeks afterwards. Usually this is sufficient to prevent swarming in most cases.

Often Demareeing is combined with queen rearing or with making an increase. In combining these procedures, do not place both hive bodies of the brood nest over the queen excluder. Instead, select one which has many eggs, young larvae, and emerging brood, and separate it from the rest of the hive with a screened inner cover, providing an entrance toward the back of the hive. Such entrance can be provided by boring a ¾ inch or a 1 inch hole just below the handhole or by placing two strips of shingles on the sides of the inner cover. The bees will then build queen cells, and the emerged queen will mate and start egg laying. Later, at the second Demareeing, the lower brood nest can be placed on top of the upper nest. At the same time a second queen excluder may be inserted in place of the inner cover, thus allowing both parts of the hive to work as a unit. Unite the top brood nest with the lower one when the main honeyflow starts and additional room is needed. If the keeper wants to increase the number of colonies, he may remove the top brood nest and place it on a new bottom board.

Instead of letting the bees rear their own queen, a queen cell from the best colony may be given to them or a new laying queen can be introduced on top. The two-queen colony may be worked as long as desired.

These are just fundamentals. There are many other methods of swarm control. On the basis of the information available you can devise your own method. If it works in most of the seasons—it is the best for your locality and conditions. But it does not mean that it will work just as well for somebody else, or under changed conditions in your own yard. A good beekeeper is a good observer. A successful beekeeper is the one that puts his observations to work for him.

Answering Your Questions

Some of my bees have dysentery and the hives and combs are quite a mess. Is there any solution to use for cleaning the hives and soaking the combs?

Elmer Mootz, Wisconsin

If the colony died of dysentery and is completely dead, then the best thing to do is to soak the combs in warm water and let them dry out thoroughly in the sunlight. If the colony is still alive, then clean out the dead bees as much as possible and let the balance build up and clean up the combs. You will be surprised how a good colony of bees will clean the combs without any outside help. If you place a dead colony over a good strong live colony after cleaning out all dead bees, or put a good package of bees in the dead hive, they will do the work.

Perhaps your hives are in a damp place. We avoid putting our bees in a low spot, but prefer to put them where there is air drainage.

How-to-do-it

Reversing Porter Escape

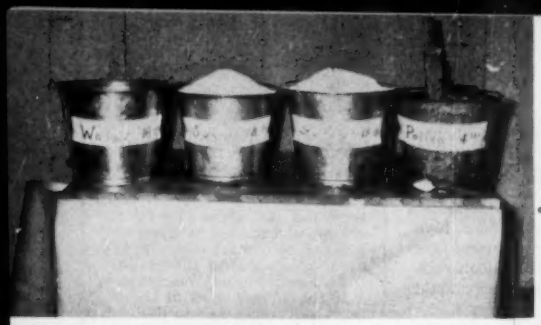
I find it useful at times to use a Porter escape with a reverse action. When I put on a new quilt (frame cover) I cut a half-inch square hole in the center by cutting between two frames with a sharp knife as the quilt lies on top. If I wish to clear any supers above, I can then place my reverse escape with the round hole over the small square hole in the quilt, and the clearing action takes place just as usual. I made my reverse escapes by opening normal ones and resoldering the springs.

W. P. Waid, Isle of Man.

The Bee Hunter

George Harold Edgell, Director of the Museum of Fine Arts in Boston, has hunted bees for a pastime over many years. He has consolidated his knowledge of how to find bee trees into an interesting 50-page clothbound book printed by the Harvard University Press at Cambridge, Massachusetts.

While the information contained in the book is not exactly new, Mr. Edgell's approach makes the book exceedingly interesting. It is priced at $2.50.



Spring Feeding

by H. A. Schaefer,

How To Get the Pollen

In January, 1947, on page 12, Schaefer gave his way of getting pollen from combs. To bring us up-to-date, let's summarize how he does it:

Instead of throwing away the pollen in the combs sorted out for replacement each year, we save pollen-laden combs. In fact, after fall extracting, we classify our combs: culls with pollen; culls empty; good combs with pollen; good combs empty. If the culls with pollen do not seem to be enough for the pollen needed in spring, good combs, full of pollen, are also used.

All of our ten-frame hives are equipped with three hive bodies for the brood nest in summer, but in fall the lower body is removed and the bees winter in the remaining two. The lower body will have little honey but several combs of pollen. When this lower body is left with the bees over winter, these bottom combs are often moldy in spring and the bees tear them down. The good combs from these lower bodies are stored and the combs with pollen are used.

To get the pollen from the combs calls for this equipment: a steam chest to melt the combs; a tub for water and a tub for the pollen; rubber gloves; two wire half-bushel baskets; one coarse mesh wire hand strainer; several coarse gunny sacks; a fifteen-gallon iron drum; a large size food chopper; several stone twenty-gallon crocks and a number of drip boards on which to dry the pollen.

The steam chest has a false bottom of coarse hardware screen to keep the slumgum from falling to the bottom of the chest. Regular window screen is placed on the coarse wire and extends up the sides of the chest about four inches. The cover of the chest fits fairly tight. On one end of the chest at the bottom is a honey gate. A steam inlet is provided just below the bottom bar line.

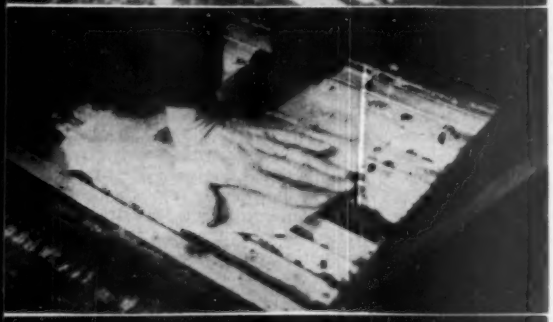
About ten minutes is enough to melt down the combs unless they are old. Then the melted combs are jarred from the frames, the slumgum falling on the screen. While the mass of slum is still hot, quickly rub it in handfuls to separate all cells thoroughly from each other. The window screening serves as a basket to lift the mass from the chest and put it into a tub of water.

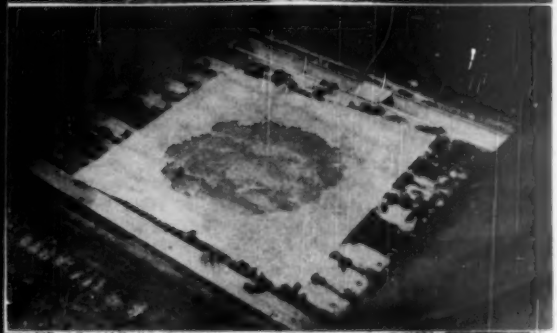
Then the slum is rubbed between the hands under the water to separate the portions. The water acts as a separator by floating the empty cells while the cells with the pollen, being heavier, sink to the bottom. The empty floating cells are skimmed off with the wire strainer. Then the pollen is dipped quickly from the bottom of the tub and put into a gunny sack placed over one of the wire half-bushel baskets which is hung in the top of the fifteen-gallon drum. This allows the water to drain from the pollen which will be fairly dry by the time another lot of combs has been melted out. The water from drainage and in the separator tub is used over and over and added to if need be and this water is saved for the sirup used in the spring mix.

After the pollen is drained it is emptied in a wash tub until the tub is full. Then we fill our drip boards with the pollen, placing screen on the tops to keep out mice; filling and stacking the drip boards one above the other until there are enough to move into a drier room where the pollen is allowed to dry several days.

Then the dry pollen is ground with the meat chopper; placed in the stone crocks and mixed with 3-2 sugar sirup. When "put down" in this way it will keep until spring.

Do not use any combs of pollen from diseased colonies. It does not pay to take a chance with spreading disease in this way.





Pollen Supplement

Wisconsin

How To Mix and Use It

The ten pictures on these two pages tell the story of spring feeding this pollen supplement. Let's begin with the mixing again, with the complete formula (top left picture on opposite page). Formula: water 16 pounds with old soy flour (14 with new); sugar 28 pounds; soy flour 16 pounds; stored pollen mix 4 pounds, and one heaping teaspoon of sulfa. Mix in a tub as shown in the top, right picture on the opposite page. The formula makes a batch as you see it in the tub. Some of the hot water is used to dissolve the pollen, the balance to dissolve the sugar. The pollen and sugar are mixed, the flour is sifted into the tub and the batch stirred until smooth. The sulfa is mixed into the hot water before it is used. The mix should be just thick enough not to run. It will get thicker after standing.

In the third picture (opposite page, second from top) we come into the beeyard with much snow and zero temperature on March 11. In picture four (second from the bottom on the opposite page) a winter pack is opened with plenty of smoke used to drive the bees down. In the fifth picture (bottom picture on the opposite page) you see strong colonies in Modified Dadant hives. They are fed the pollen supplement and a week later it has all been carried into the brood nest. Even the covering paper is all gone.

In the sixth picture, (top center of this page) the pollen supplement is being given with a large spoon; strong colonies get two spoonfuls. Picture seven (second from top above) shows how the pollen mix is covered with a square of waxed paper and pressed down as in the next picture below it (number eight). Then the inner cover is reversed so it will fit over the mix and rest normally on the hive edges.

The ninth picture (bottom on this page) shows us leaving the yard one and a half hours later, with fifty-five colonies fed, two men working. The tenth picture (top right on this page) shows the bees working on the supplement several days later. After a week none of the supplement was left and the colony had to be fed again.

EDITOR'S COMMENT:

There you have it. You too can make your pollen supplement the same way if you will; and you can feed it if you will. Colonies will forge ahead rapidly and be strong early. Then you are ready to make divides, shake out packages from the strongest, or divide into two-queen colonies for uniting again at the time of the flow.

Pollen substitute will not give the results that pollen supplement will give. Also supplement, using trapped pollen, will not give the results that pollen obtained as described, right from the combs will, with all the water saved and used, and all the stored content of the pollen retained.

Often pollen substitute made with trapped and dried pollen will not work well on colonies that do not have some comb-stored pollen and it seldom works well when pollen is naturally available. The bees take readily and actually get results from a supplement made with stored pollen, as described here. Sometimes, with supplement made from trapped and dried pollen, although the supplement may be used by the bees, examination of the brood will show that eggs, although laid abundantly, have a low viability. They do not hatch and grow as they should. When the comb-stored pollen is used the development of brood is entirely normal and rapid.

The Origin and Evolution Of the Honey Bee

Part I–Solitary Wasps and Their Ancestry

by Dr. Melville H. Hatch

Dr. Hatch, professor and acting executive officer of the Department of Zoology University of Washington, has written this comprehensive study of the evolution of the honey bee, which will appear in the Journal in three consecutive issues. This is the first installment dealing with the early insects of the group Hymenoptera from which our bee developed. Genealogy is always a fascinating subject.—Ed.

•

IN seeking the pattern of the origin and evolution of the honey bee, we glimpse the age long chain of events which has produced that marvelous insect society that the beekeeper manipulates so skillfully for the advantage and enjoyment of everyone.

Nearly everyone has heard of evolution. Within the past hundred years the sciences of biology and geology have established the fact of evolution beyond the line of reasonable doubt. The living inhabitants of our planet earth have not always been as they are today. Ten million years ago, in all probability, man had not appeared. Seventy million years ago the present race of warm blooded mammals was replaced, for the most part, by the giant reptiles. Go back another hundred million years and the flowering plants had not yet come into being. Another hundred million years, and the reptiles had not yet evolved from the amphibious salamanders; and a few hundred million years more and the continents were standing bleak and bare, uncovered by any plants more luxuriant than a few mosses and uninhabited by air breathing animals of any sort. This is the picture evolution draws.

But even at this early epoch the seas were swarming with living things. Every living thing is adapted to the conditions under which it lives —otherwise it would have been killed off long ago or never have come into existence in the first place! Moreover, living matter—bees, humans, plants—is eternally restless, forever reaching out for food materials that it may grow and produce more living matter like itself. The process whereby living matter reproduces itself is a very complicated one—so complicated that it repeatedly does not "make the grade," does not reproduce a new individual exactly like the old, but instead gives rise to a slightly different kind of organism. Part of the time, the new sort of individual is unable to get along so it dies. Part of the time, it barely survives. But once in a while the new type is successful in an important way. In fact, it may be so successful that it may drive out the parent type that produced it. This is evolution. And this is the process that, repeated over and over again millions of times in the course of earth history, has produced the multitude of organisms as we know them.

Three types of living things dominate the life of the land. First there are vascular plants, by which we mean plants with roots for extracting water and foods from the soil, stems for support, and leaves for absorbing the energy of sunlight. Vascular plants furnish the food supply on which the land animals live. Land animals themselves are of two principal types—the insects and the vertebrates. These two types approximately divide the land between them. Both feed on the plants and on each other. In size the insects and their allies leave off just about where the vertebrates begin. The insects with their exoskeletons and breathing tubes penetrating to all parts of the body are adapted for life in the small. The vertebrates with their endoskeleton and the rushing torrent that is their blood stream are adapted for life in the large.

The first insects were slow flying dragon-fly like creatures four or five inches across the wings. They developed way back some 240 million years ago at a time when the most highly developed vertebrate was no more than a very primitive reptile. They were the first animal ever to develop wings, but through just what stages they went to get their wings the rocks have not so far revealed. The possession of wings opened up great vistas to the insects, however, and the dominant position they have ever since occupied in the economy of terrestrial animals is undoubtedly due to them. Getting into the air played the same role in the Paleozoic that it plays in modern war. Command of the air leads to success, whether it be evolutionary or military.

The particular group of insects to which the bee belongs is known to entomologists as the Hymenoptera. The name Hymenoptera is derived from two Greek words: **hymen,**

membrane, and **ptera**, **wings**; and Hymenoptera possess membranous wings. But so many other insects have membranous wings likewise that the characteristic has very little of what the entomologist speaks of as diagnostic value. Three things among others had to happen to the original dragon-flylike insect I have just been telling you about before it evolved into the Hymenoptera.

First and in common with the great majority of other insects it had to form the habit of folding its wings flat over its back when they were not in use. Every beekeeper has observed this habit in his honey bees. Nothing is more useful than wings when one wants to fly, but nothing is more useless than those same wings when one wants to walk around. An airplane in street traffic will convey my meaning.

The second specialized feature of the Hymenoptera is likewise a characteristic that they share with many other insects. I refer to the differentiation of the life cycle into a wingless grub-like larval stage and a winged adult. The growing stages of the first winged insects developed their wings as useless stumps extending out at right angles from the sides of the body. It was a great evolutionary advance when these wing-stumps or wing-buds were first laid back over the body while they were developing and then were developed internally and completely out of the way until just before they were ready to be used by the animal.

The result of this particular bit of evolution was to make the young insect or larva a very different sort of an animal from the adult. This structural difference has been frequently seized upon by natural selection—to use figurative language—to adapt the larva to a mode of life quite unlike that of the adult. And we have a good deal to say about the evolution of larval habits as our account of the honey bee's evolution proceeds.

The third specialized peculiarity of the Hymenoptera is one that is possessed exclusively by it and returns us to a further consideration of their wings. The original dragon-fly-like insect had two pairs of wings of nearly equal size, and each quite separate from the other. In the Hymenoptera the hind wings became reduced in size and joined to the front wings by a series of minute hooks along the front

(Please turn to next page)

As We See It

WERE WE THINKING?—A subscriber recently commented that he was surprised that the bee journals were not opposed to price support for honey, and asked, "Were We Thinking as Business Men or Taxpayers?"

The bee journals and the beekeeping industry are opposed to those Government programs which are leading this country down the road to "socialism," "statism," or whatever you may choose to call it. We are morally opposed to the over-all high farm price supports as one of such programs.

It is true, also, that each faction who worked for price support had something to gain in a material way. At no time in our memory were beekeepers more discouraged or going out of business faster. This was happening in a new time when honey bees had become the major insect remaining for the pollination of more than fifty food and seed crops, and the only insect whose populations could be controlled.

Congress granted price support to honey to maintain the beekeeping industry because it was vital to our agricultural economy. This we hold to be one of the wisest and most economical steps taken by the Eighty-first Congress.

During World War II, it is reported that the Government made incentive payments to legume seed producers amounting to 26 million dollars per year, without materially increasing supplies of those seeds. In 1949, the Government announced one of their most extensive price-support programs which included 32 kinds of grass and legume seeds, yet supplies of several legume seeds at the end of the year were the lowest on record.

Adequate honey-bee pollination is one of the factors necessary for maximum production of legume seed crops. The pollination studies by the Division of Bee Culture at Logan, Utah, are estimated to be worth more than 10 million dollars to Utah alone. Russia, Germany, and Holland each found it necessary to rebuild and foster beekeeping at a substantial cost to its government.

It is believed that price support for honey will do much to maintain beekeeping. It has been predicted that the support program for honey may cost the Government approximately 3 million dollars annually. There is no indication now that the support program will result in an expansion of the honey industry and consequently in an overproduction of honey. The industry did not ask for a support level which would have such an effect.

For these reasons, we defend the industry's price support effort as a wise and necessary move. The maintaining of honey-bee populations for pollination will be of material benefit to our programs of soil conservation and soil fertility, and the Government ultimately would have spent many times what the support program may cost in rebuilding beekeeping.

(Continued from page 227)
margin of the hind wing. In this way the two wings on either side came to function as a single unit, and one must look closely at a bee to realize that it has more than a single pair of wings. On the side we may well wonder at the caprice of nature that started out by evolving two pairs of wings and then insisted on uniting them into what is functionally a single pair.

An observation is in order at this point. The primitive dragonfly-like insects I have mentioned are actually known from imprints in the rocks of the Pennsylvanian period, some 240 million years ago. Entomologists refer to them as Palaeodictyoptera — ancient net wings, and they were so primitive that they eventually became extinct. Fossilized hymenopterous insects are first known from the Triassic period, about 175 million years ago. But virtually all the details I shall relate of the gradual development of a generalized hymenopterous insect into the specialized honey bee are derived from a comparative study of various living types of Hymenoptera. Nor do I profess more than the very slightest originality for most of my statements. Practically all my facts and a large segment of my theory is derived from that very great student of social insects, the late William Morton Wheeler of Harvard University. Professor Wheeler was the author of two fine books, **Social Life Among Insects** (1923), and **The Social Insects** (1928), and most of what I have to say forthwith is taken from them. Not very much in either of these books is directly concerned with the honey bee. Professor Wheeler's specialty was ants. But if any one is interested in the general biological setting out of which the honey bee has emerged, I can suggest no more pertinent or entertaining reading than that provided by these two books by Wheeler.

The first Hymenoptera, back at the beginning of the Age of Reptiles, some 175 million years ago, probably were insects somewhat resembling the saw-flies. These creatures have larvae which feed on the leaves of trees after the fashion of caterpillars. The adults are short-lived winged insects that feed on leaves and that lack the thread-waisted structure of the higher Hymenoptera. Such were the remote hymenopterous ancestors of the honey bee.

An early step forward in honey bee evolution is represented by the ichneumon-fly or one of its relatives. The larvae of these insects have given up the vegetarianism of the saw-flies and have come to live in other insects. In response to these conditions, the larvae became blind legless maggots—since nature very frequently does not allow organisms to retain structures for which they have no further use. They feed as parasites among the internal tissues of the host insect, which usually dies about the time that the larvae mature and transform into winged adults.

The more primitive of these parasitic Hymenoptera deposit their eggs on plants. These emerge as active larvae which transfer themselves to an appropriate passing insect and burrow in. This habit, however, results in a great wastage of larvae which are unable to find a proper host, so that most of the parasitic Hymenoptera deposit their eggs directly on or under the skin of the host by means of the ovipositor, and it is the ovipositor sharpened for depositing eggs under the cuticle of the host insect that is the direct ancestor of the sting of the wasp and the bee.

The next step in the evolution of the honey bee was the transition from the ichneumon-fly to the wasp stage. This occurred when the host insect ceased to walk around and feed while harboring the hymenopterous larva, but instead was immobilized by poison injected by the insect's ovipositor, which now may begin to be called a sting.

Wheeler (**Social Insects** p. 61-64) describes how a minute wasp named **Scleroderma** about a tenth of an inch long will attack the larva of a wood boring beetle many times her own bulk. She stings the beetle larva repeatedly, but she is so minute that it takes from one to four days for her to inject enough venom into her prey to quiet it. Meantime she feeds on droplets of the host's blood that exude through the punctures she has made. Her abdomen enlarges and in a few days she has laid eggs which hatch into larvae that feed through punctures that they make in the cuticle of the immobilized beetle larva.

The next step is represented by a wasp like **Bethylus,** the female of which immobilizes a caterpillar and drags it to a hollow reed. There she deposits several eggs on her victim and these emerge into larvae which develop on the food supply thus provided for them.

The more typical wasp habit is represented by the genus **Sphex.** After the female has mated, and as the first egg is approaching maturity inside her abdomen, she seeks out a suitable patch of sandy ground, constructs a burrow, and widens its end to form an elliptical chamber. Then she returns to the surface, closes the entrance, and takes off in a slow undulating spiral to fix in her "mind" the precise position of the burrow in relation to the surrounding objects. Then she flies off in search of her prey, which is a particular species of hairless caterpillar. When it is found, she stings it into insensibility, gnaws a bit at its neck and feeds on some of the exuded juice, and drags it or flies with it to the entrance of her burrow. Here she drops her victim and, after entering and inspecting her burrow, returns and takes the caterpillar down into the chamber. Now she glues a single egg to her victim's surface and closes the burrow by filling it with sand. She may even tamp down the earth with a carefully selected pebble held in her jaws. As soon as the next egg ripens in her ovaries she repeats the same cycle of behavior at another spot. The egg, of course, soon hatches and the wasp larva feeds to maturity on the immobilized caterpillar. Such is the remarkable history of the solitary wasp.

Answering Your Questions

Poison spray is my big problem. What can I tell my neighbors? I can rid the bee yard of disease, but not this.

Lester Pahl, Iowa.

We would suggest that you try to tell your neighbors not to spray any of the legumes while they are in bloom. Prebloom sprays should be applied early in the morning or late in the evening when bees are not in the field and thus result in a minimum of danger to your colonies. In recent studies made by the Division of Bee Culture, when sprays were applied while bees were in the air, parathion killed 40 per cent, DDT 28 per cent and chlordane 23 per cent of the visitors. Toxaphene killed only 8 per cent and 2 per cent in two tests. These studies were made on insecticide treatments of alfalfa fields and may not apply to red clover. For further information you might obtain the report of the Chief of the Bureau of Entomology and Plant Quarantine for 1949 by sending 20 cents to the Superintendent of Documents, U. S. Gov't Printing Office, Washington 25, D. C.

Advice to Beginners

by Frank E. McLaughlin

The smell of spring is in the air,
The hum of bees is everywhere.

HERE it is spring again. May! In all parts of the country, even the North, beekeepers are getting the fever to get into the swing of things

My fingers fairly tingled, weeks ago, to get a hive tool in my hand and just lift a hive cover and note the progress being made by the greatest of all pollinators, our honey bees. In the spring it is characteristic for one to rush the season. It is wise to remember that in most parts of the country spring squalls can be expected. And these changes definitely slow up the progress of the colony if the beekeeper has gone too far, too early, in his management of his bees. This I learned the hard way in my beginner days, and the result was chilled brood in one particular colony which seemed unable to build up to any advantage during the entire season.

In this issue, I am selecting the contents of two letters as my subject. These letters were written to me by two enthusiastic beginners, living in completely different climatic localities—Mr. Donald R. Carlson, of Woodland Park, Colorado, and Mr. Ernest B. Collette, of Clermont, Florida. Mr. Carlson's letter stating he is considering bees as a hobby, brings back many memories of some time ago when my wife and I were contemplating purchasing one or two hives of bees, and using the honey at home. We had found honey to be very good medication, and we were also very fond of honey as a spread for biscuits, hot cakes and waffles. Later we discovered many ways of using honey in our foods, and have yet to find anything more healthful or delicious. If Mr. Carlson is as I judge him to be, after reading his letter, his interest in bees will grow as mine did and he will not stop with one or two colonies. The high altitude of his locality should be greatly to his advantage. And the flavor, color, and body of honey produced under these conditions should be excellent. While the honeyflow in his location would be of shorter duration than in some other sections of the U. S., the nectar bearing plants he speaks of should secrete nectar very heavily. In such a location, all colonies of better bred bees in modern equipment should do well and supply the beekeeper with a tremendous surplus of honey.

Mr. Carlson speaks of having a vague idea of what beekeeping is all about. As he manipulates his bees through a season, observing what takes place inside and outside of the hive, he will make mistakes but gain valuable knowledge. Experience is the best teacher. Beekeeping cannot be learned in one or two lessons. And with the help of good books and magazines he will soon learn the art of good beekeeping in the higher altitudes. What works wonderfully for beekeepers in the Midwest, would not be such good policy for him, and vice versa.

Mr. Collette, who lives in Florida, is also in a very fine location for beekeeping. Florida, with her warm climate and nectar bearing plants, always interested me tremendously. He writes that he and his wife recently moved into the citrus area in the central part of Florida at a comparatively high altitude. In our location, orange blossom honey is considered quite a delicacy. The pollination of citrus groves for better fruit yields is very essential, and some citrus fruit growers rent large numbers of colonies of bees for this service. This should tend to make it interesting to keep bees in that locality.

Mr. Collette says he has been told that three-banded Italians are nice bees to work with. We have had a lot of experience with the three-banded Italians, and have found them to be a very sturdy, dependable strain of bees and good honey gatherers. But from what information I have been able to gather, I think Dadant's Starline hybrid bees are very good bees, and especially nice for beginners, due to their gentleness and resistance to disease.

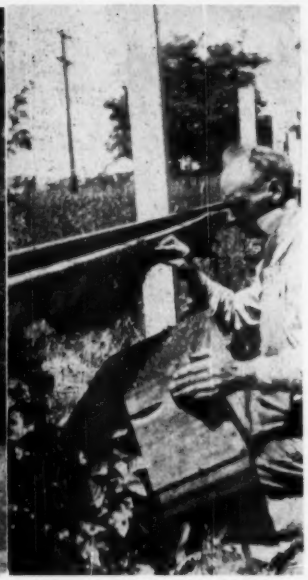
Some trees and shrubs to be planted for bee pasture in my experimental garden on the farm.

He also says he has heard that some queens are not worth having. That is a fact; a queen must be young, vigorous, properly mated, and of a good strain to head strong colonies of bees. And without a doubt, if a surplus of honey or pollination service of any consequence is expected, you must have colonies very populous with bees.

Beekeepers, if you have not already inspected your colonies, it is to your advantage to make an early inspection. If you were a beginner last year, and have overwintered colonies of bees, you should make sure they have plenty of stores. The consumption of honey under heavy brood rearing is very great. Also, be sure there is no disease in the colonies.

For inspection of the colonies, a warm sunshiny day should be chosen when the weather is calm and the bees are flying.

I invite all beginner beekeepers, including ladies and 4-H Club members, to write their bee problems to me in care of A. B. J., Hamilton, Illinois. I will be glad to try to help them from my own practical experience.



Picture Contest

Who will be the winners for June. For the cover picture, the winner will receive ten dollars; for the Break Page, five dollars. Any other pictures kept and used will be paid for at regular rates. Not more than two pictures sent by the same person will be used during the year for the cover; and not more than two from the same person for the Break Page. All payments will be made following publication.

Don't send small pictures since they do not enlarge well in making engravings. If you have a small picture you think will do send the negative. If the negative can be enlarged, it may do. Pictures should be sharp and clear with good detail and composition. Try for something of unusual interest. Don't choose the everyday, commonplace picture. Try for the unusual, off-the-record subject. Pose them if you have to. It is a good test of skill.

The Cover Winner

Thomas H. Rownes

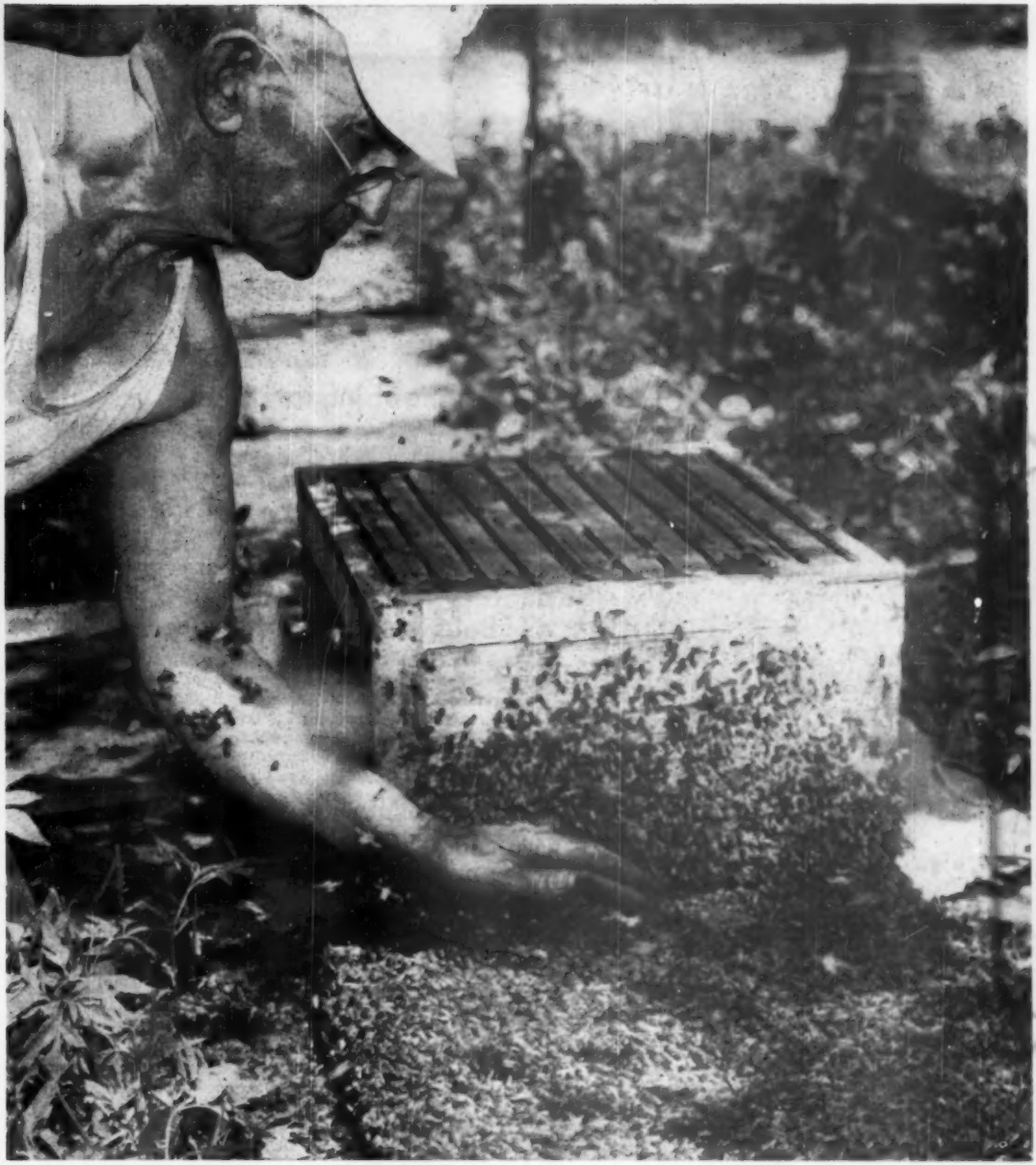
To tell the truth the picture of the orchard in bloom on the cover from Thomas H. Rownes, Walla Walla, Washington, and the break page picture from G. B. Mayes, Champaign, Illinois, were tied pretty close in choice for their positions this month. The Rownes picture finally won out on mere photographic technicality; it's just a little better picture.

Thomas Rownes first became interested in bees as a hobby about 1912 when he lived in Iowa. He now lives in Washington state where for twenty-six years he has been interested in beekeeping both for pleasure and for profit. He says "One of my greatest pleasures is watching the bees pollinate fruit as nature cannot hope to survive long without pollination."

He has been a deputy inspector in three states, including Washington, and he has about 200 colonies at Cloverdale Apiary, Walla Walla, in what is known as the Valley of the Locust in the heart of the Blue Mountains.

Rownes is an ardent member of two state associations and three locals. He is also a member of the Chamber of Commerce. In addition to his bees he is interested in pheasants, bantams and pigeons.

The Walla Walla country is a great setting for his interests. Walla Walla is Washington's key city, located within a big bend of the Columbia River. Al Jolson says, "It's the city they liked so well they named it twice." The Indian interpretation is "many waters." Often called the "Cradle of Northwest History," it is dominant in both the state and the region.



Page Break Winner

This is an unusual picture; the pose, the earnestness, the complete absence of fear, the marching bees. Our congratulations to Mr. Mayes. At seventy years of age, he is not only an ardent beekeeper but is regularly employed as a conductor on the Illinois Central Railroad and has been with the company for fifty years. He has 118 colonies of bees on his three-acre place in Champaign. For over forty-five years his bees have been a profitable sideline, together with fruit growing.

G. B. Mayes
Champaign, Illinois

He became interested in beekeeping as a boy at Okmulgee, Oklahoma, where he started working with an experienced beekeeper. When he married and moved to Champaign in 1904 he began beekeeping for himself. He has four sons who help him considerably in his bee work. His fruit includes a two-acre vineyard with 25 varieties of grapes, and one acre of nectarines, apricots, apples, peaches, plums, and walnuts. He has an exceptionally large garden. No need to say that he is busy.

A FAMOUS STRAIN OF LIGHT COLORED ITALIANS

Lot	Queens	2-lbs.	3-lbs.	4-lbs.	5-lbs
1- 5	$1.35	$3.55	$4.50	$5.45	$6.40
5- 15	1.30	3.50	4.45	5.40	6.30
15- 25	1.20	3.40	4.35	5.25	6.20
25-100	1.15	3.30	4.25	5.20	6.10
100 up	1.05	3.20	4.15	5.05	6.00

Select Tested Queens—Before June 1, $10.00 After June 1, $5.00.

Above package prices include queens. Queenless packages, subtract $1.05 from price of package with queen. All queens are airmail, postpaid, but package bees are F. O. B. shipping point and are shipped Express collect. It is preferable to ship package bees by Railway Express, however, they can be mailed and in that event, customers should include postage.

TERMS—Small orders, cash in full. Large orders, 20 per cent deposit, balance to be received two weeks before shipping date. U. S. funds. A 10 per cent discount is allowed on package bees if shipment is made after May 20. A 20 per cent discount is allowed on queens if shipment is to be made after May 20th. And a 25 per cent discount is allowed on queens to be shipped after June 1st.

•

THE DANIELS APIARIES
PICAYUNE, MISSISSIPPI

RAISE COMB HONEY

There is always a demand for comb honey—USE LOTZ SECTIONS
Bright clear basswood
Satin smooth finish
Perfect fitting dovetails
Oval V-grooves
Minimum breakage

•

We carry a complete line of equipment for raising comb and extracted honey
also
cartons, glass jars, and tin pails

•

AUGUST LOTZ COMPANY
Boyd, Wisconsin
Manufacturers and dealers in Bee Supplies

Hobnobbing at Biloxi

Enjoying each other's company at the Federation meeting in January were these two state apiarists. On the left is Floyd B. Paddock, of Iowa, who specializes in studies on disease resistant bees along with his regular duties. Ralph L. Parker, right, of Kansas, is well known for his work on collection and utilization of pollen. Wish we could have been present to hear what must have been an interesting conversation.

Beeswax Imports

The calendar year of 1949 shows imports of beeswax into the United States amounting to nearly 4 million pounds; 3,910,000 to be exact. Brazil shipped us the most, 761 thousand pounds, followed in order by Ethiopia, Cuba, Dominican Republic, British East Africa, Chile, Egypt, Russia, Angola, Turkey and Mexico.

Insect Threat Follows Mild Winter

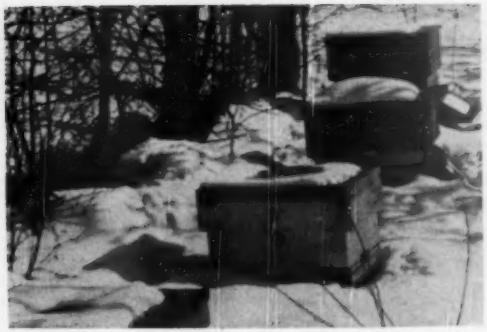
The Department of Agriculture has warned that the mild weather this winter has been favorable to three of the greatest insect menaces—grasshoppers, corn borers, and boll weevils. The Department advises that farmers may run into a serious insect problem this year, according to a story which appeared in the Chicago Journal of Commerce on February 23.

In the midwest, more European corn borers have survived the winter in the fields of the corn belt than ever before. Damage by this insect last year was estimated at $350,000,000 and the Department predicts the damage will be greater this year as weather is mild at egg-laying and hatching time.

Greatest threats of grasshoppers appear to be in Montana, North Dakota, and Wyoming. Huge numbers of eggs have been found and constitute a menace if conditions are favorable for hatching and growth of the young hoppers.

Boll Weevils have survived the mild winter in record numbers. Damage to the cotton crop last year by boll weevils and other pests amounted to more than $470,000,000 and may be more this year.

This report is given to indicate to beekeepers in these areas the possible extent of the insecticide problem which may confront them. It is suggested that every beekeeper contact his county officials in an effort to learn what may be ahead in insect control.



Colony Ventilation Melts Snow

This snowfall occurred during the most severe winter since 1845 in the south of England. Because of the damp climate top entrance ventilation is furnished by a piece of perforated zinc placed over the feed hole in the inner cover. The heat rising from the cluster which strikes the inside of the roof has melted the snow on the center of the hive cover. One hive in the picture is unoccupied and the snow is heaped on top—A. M. Dines, Kent, Eng.

Canadian Staff Changes

Ed Braun who has long been associated with the Experimental Farm at Brandon, Manitoba is transferring to Ottawa, Ontario to become assistant to Dominion Apiarist C. A. Jamieson. Jamieson recently took over that post on the retirement of C. B. Gooderham.

Braun has for many years been a strong wheel in Manitoba beekeeping, bee meetings and short courses. He is especially well known for his work on comparing overwintered colonies with package bee colonies.

In the fall of 1949, R. M. Pugh felt it necessary because of illness to relinquish his post as Alberta's Provincial Apiarist. He is now succeeded by J. H. Arnott previously a commercial apiarist and later connected with the Experiment Stations both of Ottawa and of the Province of Saskatchewan.

Irish Publications–Practical Bee Guide

There has recently come to hand, a copy of the Historical Program and Souvenir of the Third Annual Summer Course in Beekeeping which was held during the summer under the auspices of the Federation of Irish Beekeepers' Associations. It is an interesting brochure of some 60 pages with a little history, of practice, of education, and, of course, of advertising. The issue is in commemoration of the efforts of the late J. G. Digges.

A brand new 1949 edition of Rev. Digges book, "Practical Bee Guide" is now available. It has been brought completely up-to-date by Mr. R. O. B. Manley of England, one of the largest beekeepers of the British Isles who has been for years a champion of American methods in commercial beekeeping.

The Digges book of 250 pages is paper bound, well illustrated, and on good paper. The American Bee Journal is stocking a few of these books for those interested at a price of $2.50 postpaid.

Puett's

Prices for 1950

	1 to 11	12 up
2-lb. pkg. with queen	$3.00	$2.75
3-lb. pkg. with queen	3.65	3.40
4-lb. pkg. with queen	4.30	4.05
Queens	.95	.90

Same Quality, Same Service.
But Lower Prices.

"PUETT'S PACKAGES PRODUCE"

The Puett Company

HAHIRA, GEORGIA

YORK'S PACKAGE BEES AND QUEENS FOR 1950

•

QUALITY BRED ITALIANS

The Strain Preferred by Leading Honey Producers

•

Prices with Young Laying Queens

Packages	2-lb.	3-lb.	4-lb.
1 to 24	$3.25 ea	$4.00 ea.	$4.75 ea.
25 or more	3.00 ea.	3.75 ea.	4.50 ea

Young laying queens $1.00 ea.
Tested $2.00 ea.
Queenless packages, deduct $1.00 per pkg.

Order direct from this ad and save time. Book order now and have bees shipped when wanted.

•

YORK BEE COMPANY

Jesup, Georgia

(THE UNIVERSAL APIARIES)

Attention—
PACKAGE BEE BUYERS
Italian Bees and Queens
full weight, prompt shipment, young queens, live arrival guarantee. Health certificate with each shipment. Give me a trial. You will be satisfied.
2-lb. with queen $2.25
3-lb. with queen 3.15
4-lb. with queen 4.00
Extra queens ..... .75
Raymond McFarling
SHANNON, MISSISSIPPI

American Rabbit Journal
Shows the Way to Success
Gives the latest news and views of the rabbit world—an illustrated monthly magazine of general and educational features. 1 year, $1.00; 3 years, $2.00; sample 15c.
American Rabbit Journal
DEPT. S. WARRENTON, MISSOURI

Yellow Italian Bees and Queens
Same old quality and service. Live delivery and health guaranteed.
2-lb. with queen $2.75
3-lb. with queen 3.50
Queens 75c—June delivery 50c
PLAUCHE BEE FARM
BOX 5, HAMBURG, LOUISIANA

IN HEAT OR COLD THE CRIMPS WILL HOLD
WEST COAST BEEKEEPERS
Buy Quality
Lewis-Dadant Products
from
F. O. IRICK
609 S. H. St.
Tulare, California
WILL TRADE CRIMP-WIRED FOUNDATION FOR BEESWAX.

ITALIAN BEES AND QUEENS
2-lb. pkg. with queen $2.00; 3-lb. pkg. with queen $3.00; Queens, each 60c.
10% will book orders, balance 10 days before shipping date. Health certificate and live delivery guaranteed with each shipment.
BAYOU BEE CO.
RT. 1, BOX 49, MONTEGUT, LA.

YELLOW
Italian Bees and Queens
PRICES AFTER MAY 10TH
PACKAGE BEES WITH QUEEN

2-lbs.	3-lbs.	4-lbs.	5-lbs.
$2.50	$3.00	$3.75	$4.50

Queens 65c ea. plus 6c ea. for Air Mail. We guarantee live delivery, prompt service, and health certificate. 10% down to book your order, balance 10 days prior to shipping date.
Oscar Arnouville
BOX 35 HAMBURG, LOUISIANA

Renew Your Subscription

Inspectors Pay the Piper

F. B. Paddock, (Iowa-left); F. L. Thomas (Texas). Edwin Lott (Louisiana); S. E. Bailey (Ohio) walk right up to the table and shell out dues for the association, Apiary Inspectors of America, at Biloxi meeting. Killion Photo Service (Paris, Illinois) really caught these boys on the spot.

The ABBA Testing Project

by J. F. McVay,
Secretary-Treasurer

The American Bee Breeders Association is now in its third year. It is a national organization of package shippers and queen breeders who have bound themselves together by signed pledges to abide by certain rules and regulations which we believe will promote the welfare of the package bee and queen industry and eventually become of great value to the honey producers who buy bees and queens.

Our primary objective as an organization is improvement of honey bee stock; we are attempting to accomplish this in a very reasonable and practical way, and we desire the cooperation of beekeepers everywhere. As commercial queen breeders and package men we realize the great need for work of this kind, and we are pooling our efforts in that direction in the belief that we might collectively work on a larger scale and perhaps get results quicker than we might otherwise. Other organizations and men of science engaged in similar work will have our good will and moral support.

At present ABBA'S approach to the problem of better bees is simply by testing and selection. Each individual member is interested in improving his stock and trying to produce the best bees possible, but it is by running cooperative testing projects that we hope to find the really best strains of bees. And once they are found, then we shall try to improve them. It is not intended that any individual shipper shall be helped, or harmed, as a result of these tests, for by our system, if we find a strain that is good it automatically belongs to ABBA and no one will know the original owner. ABBA expects to supply queens from this selected stock to its members who in turn may produce and sell this stock to their customers.

Last year we ran two testing projects, one in Mississippi and one in Tennessee. We had a total of 110 colonies built up from 3-lb. packages of bees donated by 11 of our members, each giving 10 packages with queens. Thus we had a comparison test on 11 different strains of bees. The contributors sent the queenless packages direct to the operators of the projects and the

Swarms! Boy, oh Boy!

Ch. Kalman, Kibbuc Dan, Israel, sends this picture taken by a beekeeping friend, David Schonfeld. Apparently Mr. Schonfeld in this case had difficulty controlling swarming. It is seldom that multiple swarms go on a spree like this. Sorry, Mr. Schonfeld, but you will have to do better next time.

queens were mailed a few days in advance to the office of the Secretary. Each shipper's queens were given a number and then forwarded to the operators of the projects to be introduced to the packages. In this way the operators of the projects did not know the identity, except by number, of any of the groups of queens they were testing. The packages were installed on foundation and fed equal amounts of sugar syrup. Colonies headed by queens of the same group were scattered throughout the yard to avoid the possibility of any group benefiting by drifting bees. Throughout the season, the operators did everything with the idea of giving each man's bees a fair and equal chance, so that any differences in the groups could more properly be attributed to actual performance. The differences that did appear in the various groups were surprising.

This was not actually a honey production test, for in the Mississippi project no honey was taken, but by actual count of the brood at various intervals the operator could get a pretty fair comparison of the performance of the queens in the different groups. All of the packages had to draw out all of their combs and while those of some groups would draw two hive bodies of full depth combs and fill them with brood and honey, other groups would not complete the drawing of the combs. At the close of the season some groups were heavy with honey while others had hardly enough for winter. The operator of the Tennessee project used shallow supers above the brood nest instead of full depth bodies and it was in this yard that one group of colonies stood out above all the rest. Most groups under observation drew out all the combs in the brood chamber and most of those in a shallow super, and stored enough honey for winter; but one of the groups produced a surplus of sixty pounds of honey. This group was uniformly good and was the only group that produced a surplus.

We do not claim that these tests are conclusive, but from the eleven strains tested the operators of these projects selected three strains that appeared to be better than the others. We have arrangements made to begin breeding and we plan to use the best queens of one of the groups for

(Please turn to page 236)

LEWIS - DADANT DEALER
LEWIS WOODEN GOODS
DADANT'S FOUNDATION

WILDE HONEY FARM
ROSCOE, ILLINOIS
7 miles north of Rockford—9 miles south of Beloit on U. S. No. 51.

Hollopeter's Hardy Italians
Our 50th year with the bees, 40th as commercial queen breeders, in Northern mountain location suited to producing hardy, prolific queens, with excellent mail service. We give prompt service and full value in each queen. QUEENS, $1.80 each. Delivery begins May 15th.
White Pine Bee Farms
ROCKTON, PENNSYLVANIA

Italian Pkg. Bees and Queens
Queens after May 1st, 75c each, postpaid—10% discount on orders of 50 or more.
F. E. Morrison
Rt. 3, Box 3696, Auburn, California

Package Bees After May 20
WITH LAYING QUEENS
2-lb. with queen $2.50; 3-lb. with queen $3.25. F. O. B. West Point Mississippi.
Queens after May 20, 45c each, 50 or more 50c each.
J. W. HENDRIX WEST POINT, MISSISSIPPI

NOTICE—High Quality Queens and Bees
PRICES AFTER MAY 5
PACKAGE BEES WITH QUEENS

	2-lb.	3-lb.	4-lb.	5-lb.
1 to 10	$3.75	$3.25	$4.00	$4.65
10 and up	2.50	3.00	3.75	4.45

Extra QUEENS 75c each.
I guarantee Live Arrival, Health Certificate, and New, Neat, Light-weight Shipping Cages. Your order will be given Prompt Attention.
CARLUS T. HARPER
NEW BROCKTON, ALABAMA

SURE — YOU'LL LIKE IT
SEND $1.00 FOR SIX MONTHS TRIAL SUBSCRIPTION OFFER
THE BEEKEEPERS MAGAZINE
LANSING 15-b, MICHIGAN
Established 1938

ITALIAN BEES and QUEENS
Thirty years shipping experience. Prompt, efficient, modern

2-lb. package with queen	$2.75
3-lb. package with queen	3.60

Queens 75 Cents
ALABAMA APIARIES
URIAH, ALABAMA

BRIGHT YELLOW
ITALIAN BEES and QUEENS
2-lb. and queen $3.00; 3-lb. and queen $4.00
Queen $1.00
Successor to Dupuis Apiaries of Breaux Bridge, Louisiana, now
DUPUIS APIARIES
CARENCRO, LOUISIANA, PH. 461-W3
Andre Dupuis, Jr., Prop.

DADANT'S STARLINE HYBRIDS

MILLER REARED-DADANT DR QUEENS

The Very Latest In Resistant Bees

BRED IN ISOLATED YARDS

	1-24	25-49	100-up
DR QUEENS	$1.40	$1.30	$1.25
DR QUEENS, MAY 20	1.10	1.00	1.00
ITALIAN	1.15	1.05	1.00
ITALIAN, MAY 20	.75	.75	.75

JOHN G. MILLER, 723 6th, Corpus Christi, Texas

CAUCASIAN

PACKAGE BEES AND QUEENS

After April 25th in lots of 50

2-lb. package $3.00
3-lb. package 4.00
Queens $75.00 per hundred

D. T. WINSLETT

1015 Sonoma Ave., No. Sacramento, California

Member California Bee Breeders, Inc.

PLANT'S

Productive, Vigorous Italians—Gentle and Easy to Handle

WE GUARANTEE—
Queens are young, laying and first quality
Full weight, young worker bees.
Prompt shipment.
New, light weight cages.
Health certificate with all shipments.
No disease in any of our queen or package yards.
Safe arrival and satisfaction.

MAY PRICES
After May 6th

	1 to 50	51-up
2-lb. pkg. with qn.	$2.40	$2.20
3-lb. pkg with qn.	3.00	2.80
Queens		.75

38 YEARS EXPERIENCE

W. E. PLANT

Route No. 2,
HATTIESBURG, MISSISSIPPI

PACKAGE BEES — ITALIAN BEES AND QUEENS

On the same old basis—QUALITY, SERVICE, SATISFACTION

Live delivery guaranteed on all shipments. 10% deposit books any order.

2-lb. pkg. with queen	$2.50
3-lb. pkg. with queen	3.50
4-lb. pkg. with queen	4.50
Queens	.65

Write for discount on large orders.

E. J. BORDELON APIARIES, Box 33 Moreauville, La.

SUNKIST ITALIANS

Guaranteed live delivery, health certificate, satisfaction.

PRICES	UNTIL MAY 20			AFTER MAY 20
	1-20	20-50	50-up	
2-lb. with queen	$3.00	$2.90	$2.75	$2.50 each
3-lb. with queen	3.75	3.65	3.50	3.25 each
Queens, each	.90	.85	.80	.50 each

Live delivery—Queens clipped and— Air Mailed.

SUNKIST BEE COMPANY **Convent, La.**

MERRILL'S FIRST QUALITY

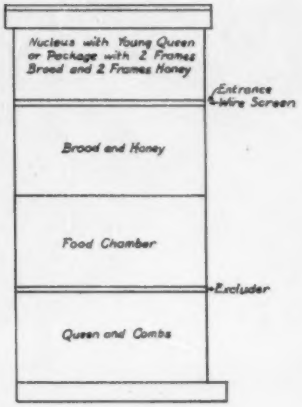
Italian D. R. or Regular Stock, Prompt Shipments.

Quantity	1-12	12-1,000
2-lb. packages with queen	$3.00	$2.50
3-lb. packages with queen	3.75	3.25
Untested queens	1.00	.75

Tested queens $1.50—Breeding queens $5.00 each.

MERRILL BEE COMPANY **State Line, Miss.**

If you wish to buy or sell, use American Bee Journal ads



A Booster Colony

The diagram above shows how to start a booster colony about May 1 or during fruit bloom. If the colony is not strong, the third story may be used for nucleus or package, after shaking off bees. Entrance can be provided by shoving top section back three-fourths of an inch or by using a notched inner cover.

To unite at the beginning of the clover flow, shake bees and queen below and remove wire screen.

E. S. Miller, Indiana.

ABBA Testing Project

(Continued from page 235)

queen mothers and the best of one of the other groups for drone mothers and get a cross between these strains. The queens produced will be available to ABBA members only and we have already booked orders for about 2,000 queens, which are handled through the office of the Secretary. The members will compare the performance of these queens with that of their own stock and some will be placed with cooperators in the North for honey production tests. Some members may use them as breeder queens immediately and offer the stock for sale. While this stock may not be the best in the world, we are fairly certain that they will be GOOD BEES, perhaps better than some shippers now have.

Meantime we are continuing our tests and next year we may have discovered a better strain. The two original projects in Mississippi and Tennessee will be continued, requeening the colonies with new queens of the same strains as a kind

Watch That Swarm!

A swarm issuing from a hive in late May. "A swarm of bees is considered as being wild in nature and becomes the property of whoever captures and hives it. Once in the air, the bees cease to be the property of the one from whose apiary they originate, unless the owner can keep them in sight with the intent of hiving them. Bees in a tree or building, once fully established as a colony, are the property of the man who owns the tree or building."—("The Hive and the Honey Bee," Chapter VII.)

---

of double check. In addition a second project of fifty colonies will be set up in Tennessee, a project of fifty colonies in South Carolina, and another of fifty colonies in Nebraska. Bees for all these projects are donated by our members and each test project of fifty colonies will be headed by five groups of 10 queens each, each group representing the strain of bees of the donor.

It is possible that the future may find us, too, experimenting with artificial insemination but at present we will stick to Nature's way. We believe that with the cooperation of all the breeders of bees in our comparison tests, good results may be obtained. The interest shown in these tests by the shippers and their willingness to contribute bees and money certainly show they are anxious for "Better Bees." If we may expect the same enthusiasm on the part of the buyers of bees and queens, coupled with a little patience, then ABBA may become the source of the best breeding stock available and ABBA members will be able to offer their customers the best.

A. I. ROOT CO. OF CHICAGO
ITALIAN BEES AND QUEENS

1950 Prices
• Order Early •

2-lb. package with queen	$3.50
3-lb. package with queen	4.50
4-lb. package with queen	5.50
5-lb. package with queen	6.50
Queens (each)	1.10
Tested Queens (each)	2.00

Queens postpaid Package bees by express, F. O. B. shipping point Order from Chicago. Bees shipped from our southern shippers.

224-230 W. Huron — Chicago 10, Illinois

THREE-BANDED ITALIAN BEES AND QUEENS

We are trying to keep our prices in line with the low prices of honey this year. We can supply you with the same high quality bees and queens that we have been producing the past TWENTY YEARS. Prices as follows:

2-lb. package with queen $3.25 — New light weight packages—overweight—disease
3-lb. package with queen 3.15 — free. Guaranteed live delivery at your station.
Untested Italian queens 75c — For queenless package deduct price of queen.

LUCEDALE APIARIES — Lucedale, Mississippi

LET'S GET ACQUAINTED!

We specialize in the production and shipment of the finest

Italian Package Bees and Queens

obtainable. Live delivery guaranteed.

3-lb. with queen	$4.00
2-lb with queen	3.25
Queens any number	1.00

Place your order early, so that we may better meet your requirements.

THE CHEROKEE BEE COMPANY, Cordele, Georgia

The most important thing anyone or any business can have is a good will of others. It is as fragile and as beautiful as an orchid; and as valuable as a gold nugget, and as hard to find; as powerful as a turbine and as hard to build; as wonderful as youth and as hard to keep. MUTH CO. since 1858.

WRITE FOR OUR MONEY-SAVING BEE SUPPLY CATALOG.
WE WILL BUY YOUR HONEY AND BEESWAX AT THE BEST MARKET PRICE.

THE FRED W. MUTH CO.
CLIFFORD F. MUTH, Sr. Pres.
229 WALNUT ST. — CINCINNATI 2, OHIO

• QUEENS—PACKAGE BEES FOR 1950 •
ESTABLISHED 1883

Maximum production is most easily assured with superior bees and queens. That's one way we try to help you make money. Superior bees and queens is our motto at all times. We like to have 50 per cent deposit and balance before shipping date. We believe this is fair to all—as we like to plan and ship the day you want shipment. Price scale:

Queens, any number $1.00—Tested Queens $2.00

2-lb. package and queen	$3.00 any number
3-lb. package and queen	4.00 any number

THE VICTOR APIARIES — Uvalde, Texas

Don't miss reading the Classified Ads

TEXAS ITALIAN QUEENS for HONEY PRODUCERS

PRICES	1 to 24	$1.10 each
	25 to 99	1.00 each
	Tested queens	2.00 each

Queens clipped or Air Mailed at no extra cost.

Queens are reared from flowers of the Rio Grande Valley, are caged and shipped the same day and safe arrival is assured. Queen breeders N. J. Barnett and M. G. Smith.

BOX 895 **RIO GRANDE APIARIES** PHARR, TEXAS

BEEKEEPING INSURANCE

Not exactly, but DISEASE RESISTANT QUEENS reduce one of your hazards. Parent stock efficiently tested and selected each year.

1950 PRICES

Quantity	Queens	Packages with Dr. Queens 2-lbs.	3-lbs.	4-lbs.	5-lbs.
1 to 9	$1.30 each	$4.00 each	$5.00 each	$6.00 each	$7.00 each
10 to 49	1.20 each	3.75 each	4.75 each	5.75 each	6.75 each
50 to 99	1.10 each	3.50 each	4.50 each	5.50 each	6.50 each

IOWA BEEKEEPERS' ASSOCIATION

STATE HOUSE DES MOINES, IOWA

THE BAKER APIARIES

Announcing MAY PRICES on Queens and Packages

	2-lb. Pkg.	3-lb. Pkg.	OUR UNEXCELLED STRAIN
1-24	$3.50	$4.50	OF ITALIAN QUEENS
25-99	3.25	4.25	Any Number $1.00
100-up	3.00	4.00	THEY PRODUCE

Health certificate with each shipment. We have never had A. F. B. Live delivery guaranteed.

C. W. BAKER, Livingston, Alabama

MACY ELECTRIC UNCAPPING KNIFE

Operates from 110-115 AC current. Steady heat. Adjustable thermostat. 6 foot rubber covered cord.

$15.00

HUTCHISON MFG. CO., Licensed Mfr.

1239 S. LORENA ST. LOS ANGELES 23, CALIFORNIA

Caucasians Unlimited

Unlimited in Quality **Unlimited in Quantity**

Probably the largest producer of quality Caucasians exclusively, offering the best in Queens.

SUMMER PRICES EFFECTIVE AFTER MAY 15

1 to 49	75c each
50 to 99	70c each
100 or more	65c each

THOS. S. DAVIS, Rt. 7, Box 3914, Sacramento, Calif.

SPEARS' QUALITY BRED ITALIAN BEES AND QUEENS

When you buy our Quality Bred Italians you are guaranteed young laying queens, prompt service and the assurance of the quality you have been looking for so long. Our bees are not bright yellow, but dark enough to be excellent honey producers and peaceful to work with. We are now booking orders for 1950 at following prices:

Queens	2-lb.	3-lb.	4-lb.
1 to 24 $ .60	$2.75	$3.75	$4.75
25 to 49	2.50	3.50	4.50

50-up—Write for special price on larger orders.

SPEARS' APIARIES Hamburg, Louisiana

A trial will convince you—A-B-J ads produce results

FIRST QUALITY Leather Colored Italian QUEENS 75 CENTS each

10% discount for 50 or more.

John S. Shackelford

Rio Oso, California

CAUCASIANS, CARNIOLANS

Hardy, prolific, rapid build-up, best of workers. Caucasians have the longest tongue of any race. Both races build beautiful white combs. BOTH ARE THE GENTLEST OF ALL RACES. Gentleness is safest in towns, near neighbors, or near streets and highways. Gentleness saves time, sweat, patience and work.

Back in our New Jersey yards now.

2-lb. package with queen	$3.50
3-lb. package with queen	4.25

10 frame colony and tested queen, $16.00.

Nearer for eastern states and southern Canada

Untested queens from our Florida yards, $1.20 each. Order here but mailed from Florida.

New Jersey reared queens ready May 25th. Price $1.00 each, Air Mail. Over 25 years a queen breeder.

ALBERT G. HANN

Glen Gardner, New Jersey

ITALIAN QUEENS

AFTER MAY 10th 55c EACH

All queens are young, large in size, good layers, and we guarantee satisfaction. On 500 or more write for prices.

A few packages left.

2-lb. package with queen	$2.50
3-lb. package with queen	3.50
4-lb. package with queen	4.25

MITCHELL'S APIARIES

BOX 391 BUNKIE, LA.

ROSEVIEW

Caucasian queens are daughters of northern-bred, production-tested old queens that have never swarmed in at least two seasons on comb honey production. These old queens are also from non-swarming mothers.

RESULT—

Long trouble-free service for you. Try them and see for yourself.

Untested $1.25 each. Breeders $5.00 each
Tested $2.50 ea. Tested Breeders $8.00 ea.
An extra queen with each 25 ordered.

ROSEVIEW GARDENS & APIARIES

HAWKESTONE, ONTARIO

Renew Your Subscription

Long-Time Location

This location in England takes some of the wind out of the migrator's sails. R. O. B. Manley, who sends the picture, says that these hives have been in this spot for over eighty years. Note the shade and roof-style covers and the legs on the stands.

Answering Your Questions

Can you give me any advice on how to measure the amount of moisture in honey? Is there any instrument that can be used for this purpose?

J. W. Powell,
New Mexico.

We have a honey hydrometer set made by the Central Scientific Company whose address is 79 Amherst Street, Boston, Massachusetts. This hydrometer comes all complete in a set with instructions as to how to handle and read the hydrometer. The list price in 1941 was $5.15. The price by now is probably quite a little more than that. We are writing the Central Scientific Company to find out just what the price may be. If you think that a price of around $6.00 or $7.00 is not too much we will be glad to order one.

Queens ● North Central Texas ● Queens

Three-Banded, leather colored, gentle, Italians—Season April 1. to October 31. $1.00 Untested — $1.50 Tested
Postpaid, First Class, Air Mail. We satisfy

GOOCH APIARIES
BOX 341 FARMERSVILLE, TEXAS

Howard Weaver's
CAUCASIAN QUEENS AND PACKAGE BEES

	Queens	With Queen 2-lb.	3-lb.
1 to 24	$1.20	$3.50	$4.50
25 to 49	1.10	3.25	4.25
50 to 99	1.00	3.00	4.00

Queen in lots of 100 and above 90 cents

●

For 20 years a partner in Weaver Apiaries
ROSEVIEW QUEENS ON REQUEST

●

HOWARD WEAVER
NAVASOTA, TEXAS

Italian Package Bees and Queens
FOR MAY DELIVERY
HUBER FOREHAND
46 Years Among the Bees.

	Queens	With queen 2-lb. pkg.	3-lb. pkg.
1-12	$1.10	$3.25	$4.25
12-50	1.00	3.00	4.00
50-100	.90	2.75	3.75

Satsuma, Alabama
In the Heart of the Deep South

Mr. Honey Producer - - - -
We still have a limited number of ITALIAN PACKAGE BEES and QUEENS to offer. These are bred from our highest producing colonies from our northern apiaries.
WRITE FOR QUOTATIONS
ROCKE APIARIES, Eureka, Illinois
AFTER MARCH 1ST ADDRESS SUMNER, GEORGIA

Italian Bees and Queens
Customers, new or old I take this method of soliciting your future orders and will greatly appreciate a continuance of your business. There is no deposit required to book an order with me. Full weight, a health certificate and live arrival guaranteed. Queens clipped at no extra cost.

Prices for 1950 package bees with queens also extra queens.

	2-lb.	3-lb.	4-lb.	Extra Queens
1 to 24	$2.50	$3.45	$4.30	$ .75
25 to 99	2.40	3.35	4.15	.70
100 up	2.35	3.15	4.00	.65

FARRIS HOMAN Shannon, Miss.

BRIGHT YELLOW ITALIAN BEES AND QUEENS
Full weight packages of young bees. Each package is headed by a young queen.
Prices after 2-lbs. 3-lbs. Queens All Queens Shipped
May 10th $2.50 each $3.25 each $4.00 each 70c each Air Mail
We guarantee live delivery, prompt service and health certificate with each order
ALVIN J. DUCOTE, Hamburg, La.

BY AIR MAIL By ordering in advance you TOO can get **O K Queens for $1.00 each**
This strain is the result of cross-breeding at least ½ dozen of America's leading strains, which according to customers' reports from nine different countries, helps to eliminate practically all diseases and winter losses to a great extent. Booked up until May 20th. QUEENS 75c EACH AFTER JUNE 1st. price U. S. A. and Canada only, other countries add 25c per queen.
O. K. ANDERSON BOX 193 COFFEE SPRINGS, ALABAMA

No Doubt You Have Heard the Old Saying—
THE BOTTOM HAS DROPPED OUT. ON MAY 15 WE ARE GOING TO KNOCK THE SIDES OUT WITH 20% DEDUCTION ON QUEENS AND 10% ON PACKAGES

	Queens	2-lb.	3-lb.	4-lb.	5-lb.
	$ .65	2.45	$3.50	$4.25	$4.95

GULF COAST BEE CO. Schriever, Louisiana

—HONEY WANTED—
CARLOADS AND LESS THAN CARLOADS
Send samples and quote best cash price delivered to us. All grades.
HONEY SALES COMPANY
1806-08 No. Washington Ave.
Minneapolis 11. Minnesota

Modern Beekeeping
The picture magazine of beekeeping. We show you with pictures how to do the job easier, quicker, and better. Special inventor's page. 1 yr. $1.50; 2 yrs. $2.50; 3 yrs. $3.25
MODERN BEEKEEPING
PADUCAH, KENTUCKY

BEE SUPPLIES
Write for our new catalog and price list.
A. H. RUSCH & SON CO.
Manufacturers — Jobbers
REEDSVILLE, WISCONSIN

CAUCASIAN QUEENS
90 CENTS EACH
75 CENTS IN LOTS OF 50 OR MORE
Lohman Bee Co.
Rt. No. 2, Box 644, Loomis, Calif.

Renew Your Subscription Now To A-B-J

Pollination

(Continued from page 220)

duction of various legume seeds had become so serious that Congress had appropriated funds for investigating the various problems involved in their production. Two centers of research were established, one at Logan, Utah, in cooperation with the Utah Agricultural Experiment Station, and the other at Columbus, Ohio, in cooperation with the Ohio Agricultural Experiment Station and the State University. Frank E. Todd and A. W. Woodrow, respectively, were placed in charge of these centers and, in addition, the Division of Bee Culture continued the investigations on insect-plant relationships at the Pacific States Bee Culture Laboratory, under the capable direction of Geo. H. Vansell.

In 1942, Jas. I. Hambleton, Chief of the Division of Bee Culture, had issued that important Circular E-584 entitled, "The Dependence of Agriculture on the Beekeeping Industry —A Review," which gave full proof that honey bees played a vital part in the pollination of more than fifty food and seed crops. A symposium on the pollination of alfalfa appeared, in 1946, in the Journal of the American Society of Agronomy, with Q. A. Hare, Geo. H. Vansell, Frank E. Todd, C. J. Sorenson, John W. Carlson, F. W. Lieberman, and H. M. Tysdall, all of the Department of Agriculture, contributing. Also in 1942, Vansell had published a circular on factors affecting the usefulness of honey bees in pollination and, in collaboration with Todd in 1948, he published a report on pollen gathering in various locations on the Pacific Coast.

At the end of the first half century, our country is faced with a serious lack of pollinating insects. The inducement to plant cash-crops during the war period and the subsequent support programs, nearly every modern farming practice, and the extensive use of insecticides and herbicides have resulted in the destruction of the wild pollinating insects.

The Department of Agriculture conservatively states that supplies of legume and grass seeds are low and that, even without a potentially greater need, increased production is desirable to conserve and improve acreage released by the reduction of cash-crop plantings.

The pollination services of the honey bee thus are brought to their fullest importance as we turn to the last half of the present century. Congress recognized this in granting price support to honey in order to maintain our honey-bee populations. How soon it will be fully recognized by agriculture remains to be seen. How soon the beekeeping industry will awaken to the fact that the pollination of legume and food crops is a responsibility of theirs also remains to be seen. This responsibility rests squarely upon the shoulders of the industry simply because there is no known means of accomplishing cross-pollination without insects, and there is no known means of maintaining and increasing wild bee populations: That is the challenge which confronts beekeeping as we face the next half century.

Beekeeping for Veterans

There are two types of farm training available to veterans. One is "on-the job" training for which a veteran would qualify if he worked for a beekeeper. The other type is the "institutional-on-farm" training which is under the supervision of some approved agricultural teacher who must visit the applicant on his own farm several times a season. Under a recent ruling of the Veterans Administration, beekeeping as a sole agricultural enterprise is no longer acceptable for "institutional-on-farm" training. However, if a beekeeper also carries on some other agricultural activities that contribute to his income, such as fruit growing, poultry production, or raising legumes, he can qualify for such training.

Those interested in getting "on-the-job" training should contact the Supervisor of Agricultural Training in their State Department of Education for assistance in setting up a training program.

The American Bee Journal is indebted to Harold J. Clay, Specialty Crops Division, Fruit and Vegetable Branch, Production and Marketing Administration, U. S. D. A., Washington 25, D. C., for the above information. For additional information, contact either Mr. Clay or Mr. D. Z. McCormick, Chief of the Agricultural Division of the Education and Training Services, Veterans Administration, in Washington.

Death of M. S. Stone

It is with deep regret that we announce the passing of M. S. Stone, General Manager of Superior Honey Company. Mr. Stone died in his sleep on the night of April 17 at Santiago, Chile. He and Mrs. Stone were on a South American cruise and were preparing to come home. "Spence," as he was known to his friends, will be greatly missed by members of the industry. He has been called the "Will Rogers of beekeeping."

Mr. Stone was born on a farm near Ogden, Utah, September 18, 1882. Having followed farming and stock raising in his younger life, he was always mindful of the problems of the beekeeper. In 1912, he became a partner in the Superior Honey Company. He was one of the men who was instrumental in organizing the American Honey Institute, which he served as Director and at one time as chairman of the Board. On many occasions he made his services available to the U. S. Department of Agriculture, where his sound judgment was desired on beekeeping problems. Mr. Stone was always interested in the individual honey producer, and for many years he attended the national beekeeping conventions regularly. He had developed many friendships among members of the industry throughout the U. S., Canada, and Mexico.

Mr. Stone is survived by his wife, Ivy; two sons, Roland of the Superior Honey Company, and Ralph, a student at California Institute of Technology; and two daughters, Mrs. Josephine Corey of Salt Lake City and Mrs. Carol DeLaubenfels, of Oberlin, Ohio.

HERE THEY ARE
• 1950 PRICES •

	2-lb. Pkg. with queen	3-lb. Pkg. with queen
1-25	$3.00	$3.75
26-up	2.85	3.50

10% deposit with order, balance ten days before shipping date. Queen prices on request.

These packages are the same quality as we have shipped in the past, featuring: Gentleness, Good Wintering, Conserving stores.

Order so delivery will be made not later than Friday. Shipping starts March 15th or as soon after as queens are available.

"They Produce"

ROSSMAN & LONG

Box 133 Moultrie, Georgia

GARON'S HIGH PRODUCING STOCK TO OVERCOME LOW HONEY PRICES

Our QUALITY 3-BANDED ITALIANS have made many satisfied customers for us.

	2-lb. with queen	3-lb. with queen	4-lb. with queen	Queens
1- 24	$3.25	$4.15	$5.00	$1.00
25- 99	3.00	3.85	4.70	.90
100-499	2.75	3.55	4.55	.85

For packages with Dadant's Starline Hybrid DR Queens quoted below, deduct the price of the Three-Banded Italian Queens and add the price of the Dadant Starline Hybrids.

PRICES AFTER MAY 20TH

1- 24	$3.00	$3.90	$4.75	$ .85
25- 99	2.75	3.60	4.45	.75
100-499	2.50	3.30	4.10	.70

GARON REARED
Dadant's Starline Hybrid Disease Resistant Queens

Progeny tested for honey production. Resistance to foulbroods. Large brood patterns and reasonably gentle.

		After May 20th
1- 24	$1.35	$1.10
25- 99	1.25	1.00
100-499	1.20	.95

Quality — Service — Promptness

GARON BEE COMPANY

Telephone 8616 Donaldsonville, La.

QUEENS PACKAGES

ITALIANS **CAUCASIANS**

When you want GOOD QUEENS try us. We will give you QUALITY plus SERVICE at REASONABLE PRICES.

One of the South's Old Reliable Shippers

PRICES TO MAY 20TH

Lots of	Queens	2-lb. and queen	3-lb. and queen	4-lb. and queen	5-lb. and queen
1- 24	$1.00	$3.25	$4.15	$5.00	$5.90
25- 99	.90	3.00	3.85	4.70	5.50
100-499	.85	2.75	3.55	4.35	5.10

Add $1.00 to above prices for Tested Queens

PRICES AFTER MAY 20TH

1- 24	$ .60	$2.75	$3.50	$4.25	$5.00
25- 99	.55	2.50	3.25	4.00	4.75
100 up	.50	2.25	3.00	3.75	4.50

Add 75c to above prices for Tested Queens

Packages F. O. B. Shipping Point
For Queenless Package Deduct Price of Queen
Queens Postpaid, Air Mailed or Clipped
(No Extra Cost)

THE STOVER APIARIES

MAYHEW, MISSISSIPPI

BEEKEEPERS—This is a late spring!

Build up your colonies with

Pollen Substitute

1 part Brewers Yeast, 4 parts Soy Flour

	5-lbs.	10-lbs.	25-lbs.	50-lbs.	100-lbs.
Pollen Substitute	$1.10	$2.00	$4.00	$6.75	$11.25
Brewers Yeast	1.50	2.50	5.00	8.00	15.00
Soy Flour	1.50	2.00	3.25	5.50	9.00
Skim Milk	1.50	2.50	5.00	8.00	15.00

All prices F. O. B. Milwaukee. Shipment sent C. O. D.

AMBER LABORATORIES, Inc.

SPECIALTY FEEDS DIVISION

3456 N. BUFFUM ST.

MILWAUKEE 12, WISCONSIN

DADANT'S FOUNDATION FOR BULK COMB HONEY

A special, light colored foundation, somewhat heavier than thin super, but lower in price. White, beautiful comb honey packd in glass and surrounded with a fine grade of liquid honey is a package that customers just want to buy.

•

DADANT & SONS, Inc.

HAMILTON, ILLINOIS

JENSEN'S

"RIGHT NOW SERVICE." If you have delayed placing that order you may need some fast service now. We are prepared to give it on either package bees or queens, and the quality will be the best.

"Magnolia State" Italians our Old Reliable

		May 20	2-lb. Pkgs. with queens	3-lb. Pkgs. with queens
1- 24	$1.10	$1.00	$3.75	$4.75
25- 99	1.00	.90	3.50	4.50
100-999	.95	.80	3.25	4.25
1000-up	.90	.75	3.00	4.00

Packages after May 19 are 25 cents less.

If daughters of Dadant's Starline Italian "Hybrid" stock are wanted in packages, deduct price of queens listed above and add as follows:

		May 20
1- 24	$1.40	$1.30
25- 99	1.30	1.20
100-999	1.20	1.05
1000-up	1.15	1.00

Remember! These are Jensen reared queens. Disease Resistant of Dadant developed and tested breeding queens that have been instrumentally inseminated, and mated in isolation yards with drones of same stock. For gentleness and other desirable characteristics including high production, they are tops.

JENSEN'S APIARIES

Macon, Mississippi

Have You Tried

ASHURST "SUREWAY" CAGES?

Read what Mr. Ivan B. See of Bergton, Va., has to say:

"In response to the samples of Ashurst 'Sureway' Cages you sent me last season to try out, I wish to state that I used these release cages all of them you sent me, and must say they are far superior to any system I have used in my thirty-five years in the honey producing trade, so I am enclosing an order for more cages."

Signed—Ivan B. See

•

ODER YOURS NOW!

•

SUPERIOR HONEY CO.

OGDEN, UTAH

IDAHO FALLS, IDAHO—DENVER, COLORADO
PHOENIX, ARIZONA—LOS ANGELES, CALIF.

Mr. and Mrs. D. W. Spangler of Longmont, Colorado. Mr. Spangler was one of the early directors and members of the Colorado Honey Producers' Association. He has reported for our crop page for many years and writes that 1950 is going to be one of the busiest of his 81 years of life. He reports that this spring may see rather severe losses in colonies in Colorado due to injudicious spraying of alfalfa and other legumes and loss of adult bees last summer. But he is not downhearted over the overall beekeeping outlook.

Bees and Queens Shipped In 1949

Government figures are available on the volume of package bees and queens shipped in 1949. Package shipments were 34 per cent less than in 1948 while queen numbers dropped nearly 30 per cent. Total queens shipped was 667,600 in 1949 while packages totaled 298,923, of which 60 per cent were 2 pound and 39 per cent 3 pound.

On an average 3.7 pounds of bees per colony were shipped as against 4.7 in 1948 and 5.7 in 1947. Dropping volume and a higher price paid for materials and labor have made it a "squeeze" for southern bee producers.

California leads in package bee shipments, followed by Alabama, Louisiana, Texas, Georgia and Mississippi, in order. Alabama, however has a slight lead over California in queens produced and shipped.

Over 200,000 colonies are being prepared for 1950 bee production while on January 1 advanced orders accounted for only 23 per cent of expected production.

Wedmore's Revised Edition

A new printing of Wedmore's second revised edition "A Manual of Beekeeping for English Speaking People" is now being stocked in North America by Longmans Green & Co. of 55 Fifth Avenue, New York.

This cloth bound book of 380 pages covers all the various phases of beekeeping including the honey bee, comb, wax, honey, management and equipment, swarming and diseases, etc. Wedmore is too well known in beekeeping to have done anything but a careful job in this his second revision of a book first published in 1932.

Copies may be obtained from this office or from the American agents as above. The price is $5.00.

The home of Mr. and Mrs. Spangler in Longmont where he says they have "hibernated" since 1901. The place was an alfalfa field when they bought it. It is now in the city limits and consists of a half city block. The Spanglers have a son who has been in the Bureau of Agricultural Economics, U. S. D. A. in Washington for about 25 years. Mr. Spangler retired from teaching at the age of 70.

Honey Fruit Cake

By the generosity of our good friend A. G. Woodman, we had the opportunity of trying out two of the Honey Fruit Cakes made and distributed by the Holland Honey Cake Co. of Holland, Michigan. The cake contains honey, rye flour, buttermilk, leavening and fruit—no fats, no sugar, no syrup.

The cake is nicely packaged, with the name of the maker and an attractive Dutch windmill printed on the wrapper. The proof, of course, is in the eating. Our staff members found it excellent for breakfast as recommended on the package; equally as good as a dessert with a sauce dressing.

No information is available as to the amount of honey used annually by the bakers of these cakes, but duplication of such uses by firms with general distribution of their products would do much to cure our present day honey industry ills, especially if more effort were made by beekeepers and bee interests generally to popularize honey both for the table and for cookery.

Bees and Red Clover in Sweden

From Sweden comes a 16-page reprint "OIKOS" (in English) by Ole Hammer, entitled "Investigation of the Nectar Flow of Red Clover."

Tests both of amount of nectar in the honey stomach of the bees on entrance to the hive and the concentration of sugar in such nectar were made in a number of different localities and over a period of three years.

Red clover is important as a nectar source in Sweden, the nectar being of fairly high sugar concentration, and generally of good quality. Dry hot weather conditions are best. Concentration of sugar in the nectar varies from 40% or more in the forenoon to as high as 57% in the afternoon.

May We Suggest

THAT YOU USE THE MOST PRACTICAL AND PROVEN METHOD OF PRODUCING, AND MERCHANDISING COMB HONEY—BY USING OUR HONEY SECTIONS.

We manufacture and sell direct to the beekeeper all the items contained in the section super.

YOU WILL NOT PAY HIGH PRICES FOR YOUR SECTIONS IF YOU BUY THEM FROM US. WRITE FOR OUR NEW PRICE LIST WHICH INCLUDES ALL THE ITEMS NEEDED TO OPERATE A SUCCESSFUL APIARY.

HONEY SECTIONS

You can buy a package of 100, or a carload

MARSHFIELD MFG. CO.

(INC.)

MARSHFIELD, WISCONSIN

(The heart of Wisconsin's Dairyland)

MANUFACTURERS AND RETAILERS

Three-Band Italian Package BEES AND QUEENS

and Pure Italian Three-way D. R. Queens

Full weight, prompt shipment. Young bees. State health certificate with each shipment. Live arrival guaranteed.

Replacement or refund made promptly upon receipt of bad order from your express agent.

1950 PRICES

WITH YOUNG LAYING QUEENS

Lots of	2-lb.	3-lb.	4-lb.	5-lb.
1 to 29	$3.25	$4.00	$4.75	$5.50
30 to 100	3.00	3.75	4.50	5.25
100 up, each	2.80	3.50	4.25	5.00

Tested queens $2.00 each.

Untested queens $1.00 each.

For introduced queen add $1.00 per package. If queenless bees are wanted deduct $1.00 from the package price.

JACKSON APIARIES

Funston, Georgia, U. S. A.

Classified Advertisements

BEES AND QUEENS

WHAT! BUY POOR QUEENS. Those good Weaver queens for May shipment—1 to 24, $1.00; 25 to 99, 95c; 100 and up, 90c. For quality and service. Weaver Apiaries, Navasota, Texas.

THREE-BANDED ITALIAN QUEENS $1.00 each. Ten queens or more, one queen free. After May 25, queens 75c each. Luther Pickett, Efland, N. C.

REAL PETS—Brown's non-stinging, non-swarming bees. Honest producers. Now booking for June. $2 queen. Brown's Apiary, Cape May Court House, N. J.

CAUCASIAN QUEENS $1.00 each postpaid. Eppling's Apiaries, "Idlewilde," Covington, Virginia.

I HAVE A LARGE STOCK of nuclei and colonies for April, May and June delivery. Carniolans and Italians. Queens ready to mail now, $1.25 each. Wm. Atchley, 500 East 9th Street, Upland, California.

ITALIAN PACKAGE BEES and QUEENS —Dependable quality, honest service, reasonably priced. Inquiries solicited. Crenshaw County Apiaries, Rutledge, Ala.

YES, ALL COMPARISON proves that Green's profit producing queens are the best. They will please you from the brood nest to the harvesting of a great crop of honey. Backed by 22 years of breeding better queens. Price 90c each. After May 20th, 75c each. D. P. Green, Rt. 2, Deland, Florida. Phone 512XM.

QUEENS OUR SPECIALTY — Carniolans, $1.20; Caucasians, 90c. Isolated mating yards. Italians, 90c each; Italians after May 15th, 50c. Walter D. Leverette, Fort Pierce, Florida.

THREE BANDED ITALIAN bees and queens. 2 lbs. with queen, $3.50; 3 lbs. with queen, $4.50. Queens, $1.10 each. Bessemer Apiaries, 4300-A Raleigh Road, Greensboro, N. C.

CAUCASIAN QUEENS—1 to 9, $1.25 each; 10 to 49, $1.00 each; 50 and over, 90c each. Howard E. Crom, Rt. 1, Box 75, Ripon, California.

BRIGHT GOLDEN ITALIAN bees and queens. 2 lbs. with queen, $3.50; 3 lbs. with queen, $4.50. Queens, $1.10 each. Guilford Apiaries, 4300A. Burlington Rd., Greensboro, N. C.

CAUCASIAN BEES and QUEENS—Finest quality, extra good workers and very gentle. Package bees—1 to 25, 2-lb. with queen, $3.50; 3-lb. with queen $4.50. 25 up, 2-lb. with queen, $3.25; 3-lb. with queen, $4.25 each. Select untested queens, 1 to 25, $1.10; 25 up, $1.00 each. Health certificate with every order. Black River Apiaries, Rt. 1, Currie, N. C.

GOLDEN ITALIAN bees and queens—Best of quality, very gentle. Package bees, 1 to 25, 2-lb. with queen, $3.50; 3-lb. with queen, $4.50. 25 up, 2-lb. with queen, $3.25; 3-lb. with queen, $4.25 each. Select untested queens, 1 to 25, $1.10; 25 up, $1.00 each. Tested, $2.50. Carolina Bee Farm, Graham, N. C.

CAUCASIAN CARNIOLAN BEES — 2-lb. package $3.00; 3-lb. pkg. $4.00. Queens $1.00. Tillery Brothers, Greenville, Ala.

THREE BANDED Italian bees and queens —Extra good workers and very gentle. Package bees, 1 to 25, 2-lb. with queen, $3.50; 3-lb. with queen $4.50; 25 up, 2-lb. with queen, $3.25; 3-lb. with queen, $4.25. Select untested queens, 1 to 25, $1.10; 25 up, $1.00. Satisfaction guaranteed. Alamance Bee Co., Graham, N. C.

THE SAME PRICE to everybody. 75c for Italian queens. 2-lb. package with young laying queens $3.00 and 3-lb. package with young laying queen $3.75. Southern Apiaries & Supplies Company, Chatom, Alabama.

Copy for this department must reach us not later than the tenth of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

Rate of Classified advertising—13 cents for each word, letter, figure or initial, including the name and address. Minimum ad, ten words.

As a measure of precaution to our readers we require reference of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on comb must guarantee them free from disease or certificate of inspection from authorized inspector. The conditions should be stated to insure that buyer is fully informed.

GOLDEN QUEENS—90c air mail. Write for quantity price. O. E. Brown, Rt. 1, Asheboro, N. C.

LANGE'S QUALITY QUEENS for 1950—Leather colored Italians, 1-50, $1.10; 50 and up, $1.00. Lange Apiaries, Rt. 2, Box 23-W, Mission, Texas.

SATISFACTION ASSURED with Atherton's dark Italian queens at $1.00 each. Write for prices on established colonies. Atherton Apiaries, Kenedy, Texas.

YANCEY HUSTLERS—Reliable package bees and queens. Priced right. Caney Valley Apiaries, Bay City, Texas.

PACKAGE BEES headed by Mountain Gray Caucasians or leather Italian Queens 2 lbs. with queen, 1-24, $3.60; 24-99, $3.45; 100 up, $3.25. 3 lbs. with queen, 1-24, $4.50; 24-99, $4.25; 100 up, $4.10. Queens, 1-24, $1.10; 24-99, $1.00; 100 up, 95c. March 20 delivery. Twin Bee Co-op., 3616 Caucasian Circle, Tampa 9, Florida.

BREWER LINE BRED Caucasian queens—1-24, $1.10; 24-99, $1.00; 100 up, 95c. Member ABBA. Brewer Brothers Apiaries, 3616 Caucasian Circle, Tampa, Florida.

FOR SALE

75 lbs. Dadant's crimp-wired foundation at close out price. Lee Duxbury, Preston, Minn.

BEES—100 colonies, supers for 50 more, 4-frame lifetime extractor, 175 comb supers. Ready to go. Other equipment. A. L. Walker, Rt. No. 2, Box 32, Vacaville, California.

FOR SALE—Bees and equipment. Disease free. Would trade for late model car. W. M. Peacock, Mapleton, Iowa.

FOR SALE—Filter presses, filter paper of various types for filtering honey. The Cellulo Co., Sandusky, Ohio.

TEN NEW HIVE BODIES and frames, 20 used, 10 supers, 2-frame reversible extractor, electric knife other equipment. Price reasonable. Madison 6-2719-M, H. A. Dunham, 18 Niles Ave., Madison, N. J.

FOR SALE—Twenty-frame Root honey extractor complete with motor and power drive. A-1 condition, ready to operate. F.O.B. Omaha, Nebraska, $110.00. J. J. Guenther, 7715 N. 39th St.

ROOT FONDATION MILL, 10 inch, latest model, good condition. Write for information. W. E. Cannada, Roxton, Texas.

Senior Brand Melter, galvanized tank. Used one season. Albert Pastian, Bradley, So. Dakota.

FOR SALE—500 colonies bees in Red River Valley, Minnesota. Two story M. D. hives with over-wintered colonies, $10.00. Extra supers drawn comb, $2.00. One half cash on above, balance terms. Certificate furnished. 80-frame Woodman extractor, $125.00. McElroy power uncapper, $100.00. Honey tanks with coils cheap. 1250 cases 3-lb. round honey jars with caps, 100 dozen lots, 45c doz. Honey pump, new frames, miscellaneous items. Box 302, c/o American Bee Journal.

FOR SALE—Approximately forty colonies bees. Comb honey equipment. State inspected. Harry L. Zimmerman, 355 S. Spring St., Bellefonte, Penna.

BEES FOR SALE AND LEASE—1. Will sell part or complete units to fit your requirements. 2. You can purchase part of unit and lease additional quantities to round out your needs with option to buy later. 3. Proven territory. Idaho, Wyoming, Montana, Nebraska—sweet clover, alfalfa areas. 4. Our processing plant and marketing program assures outlet all honey produced from bees purchased or leased. Bright future—low cost operations. Our 45 years' practical production experience ready to assist you getting started. Right prices, reasonable terms available. R. D. Bradshaw & Sons, Wendell, Idaho. Largest individual producer-packer in U. S.

FOR SALE—Good outfit, hives, supplies for about twenty colonies at Rankin, Illinois. Alfred P. Johnson, Elizabeth, Colorado.

FIFTY-FIVE COLONIES BEES, wintered in double hive bodies. 50 full depth supers, 85 shallow supers, 25 comb supers, 12-frame power extractor. All 10-frame equipment, purchased new during and after war. Well painted, full drawn combs. I have had no foulbrood. Yearly inspected. Also 100 cartons (12) 32 oz. and 30 cartons (24) 16 oz. honey jars. Sell on account poor health. Fair offer gets it. George H. Klausing, 1116 N. Cedar Rd., New Lenox, Illinois.

FOR SALE—500 2-story 10-frame hives Italian bees. In good location. 1500 supers, extracting equipment, honey house 50 x 50. Modern new 5-room home. If interested write J. T. Camp, Hot Springs, Montana.

FIFTY COLONIES BEES in 2-story hives, $10.00. Also extracting equipment for 100 colonies. No disease. Alf. Hansen, 5002 North 23rd Street, Omaha 11, Nebr.

WINDOW CARTONS—Attractive, two colored, selling out at a sacrifice, 4¼x4¼x1⅞ inches, $9.00 per 1,000 f.o.b. Lose Brothers, 206 East Jefferson St., Louisville, Ky.

400 colonies, supers, extracting equipment. Can retain locations. Box 293, Port Huron, Michigan.

HONEY and BEESWAX WANTED

WANTED—Clover and light amber honey. Please send sample and quote price and quantity in first letter. Ben Hughes Honey Co., New Market, Mo.

WANTED—Bulk quantities of amber and white extracted honey. Submit sample. Schultz Honey Farms, Ripon, Wisconsin.

WANTED—Honey in any quantity. Please send samples, quote price. Cole's Honey Co., 231 Pacific Ave., Piedmont, California.

WANTED—Comb honey and extracted honey, large or small amounts. Send price list and samples. R. A. Raley, Box 2263, Daytona Beach, Florida.

WANTED — Extracted honey, white or light amber, in 60's. State price in first letter. Ed. Heldt, 1004 W. Washington St., Bloomington, Illinois.

WANTED—All grades comb and extracted honey, large or small amounts. Quote price in first letter. Mail sample. King Honey Co., 326 Bales St., Kansas City, Mo.

HONEY AND WAX WANTED. Mail sample. Advise quantity. Bryant & Sawyer, 2425 Hunter St., Los Angeles, Calif.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 1360 Produce Street, Los Angeles, California.

HONEY WANTED

Carloads and less than carloads. Mail sample and best prices in all grades.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

HONEY FOR SALE

HONEY—Choice light amber mixed with citrus in 60 pound cans, 12 cents per pound. N. J. Barnett, Box 895, Pharr, Texas.

500—60's clover and yellow blossom honey, about 50-50 blend. Clyde Roberts, Mooresville, Mo.

CLOVER, extracted, in 60-lb. cans. Liquid, $8.40 per can; crystallized, $8.00 per can. Lose Brothers, 206 E. Jefferson St., Louisville, Ky.

NEW CROP OF HONEY shipped daily from producer in Florida. Pure orange blossom, 5-lb. pail $2.25. Pure Florida cut comb honey, 5-lb. pail $2.75. No C.O.D. orders; all shipments prepaid. E. R. Raley, Box 1610, Daytona Beach, Florida.

WANTED

WANTED—Shallow extracting supers and 5⅜ inch frames. Asa Buren, Cullom, Illinois.

TRADE FOR HONEY—5-lb. new pails 400. Prefer 10-lb. pails of honey. W. Ames, Deerfield, Wisconsin.

WANTED—Bees in Colorado. (8-frame, dovetailed only) Siegrist, 7741 W. 44 Ave., Wheatridge, Colorado.

POSITIONS AND HELP WANTED

POSITION WANTED—Bee specialist. I am ready to work in apiaries. Willing worker. Immigrant. Write Theodore Lewycky, 635 Centre St., Trenton, N. J.

SUPPLIES

YOUR WAX WORKED into quality medium brood foundation 23c pound; 100 lbs., $19.00. Medium brood foundation for sale at 65c lb. Fred Peterson, Alden, Iowa.

OUR FREE BEE SUPPLY CATALOGUE. Lists double boilers, special motors, blowers, etc., not listed by others. We manufacture bee hives, wired and plain foundation, tanks and extractors, etc. Quick delivery from stock. Walter Kelley Co., Paducah, Kentucky.

CLEAN UP AFB with sulfa. 25 tablets 50c; 50, $1.00; 100, $1.50; 1,000, $7.00. Free Circular, quick shipment. WALTER T. KELLEY CO., PADUCAH, KENTUCKY.

SOUTHERN CALIFORNIA HEADQUARTERS for Bee Supplies. Make our facilities your "Trading Post." Complete stocks. See our Bulletin Board for Budget Bargains. The Diamond Match Company, 1300 Produce Street, Los Angeles 21, Calif.

FOR SALE—25,000 mill run Lewis sections 3⅛x5x1⅜ scalloped 4 sides ⅛ inch at $14.00 per thousand, f.o.b. Hamilton, Ill. Dadant & Sons, Hamilton, Illinois.

BEE SUPPLIES — Lewis Woodenware — Dadant's Foundation. Send for catalog. Simeon Beiler, Intercourse, Pennsylvania.

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

THE ONLY COMB FOUNDATION PLANT in the East. We sell foundation, work your wax, render combs and cappings. Robinson's Wax Works, Rt. No. 3, Auburn, New York.

WRITE FOR CATALOGUE. Quality bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries. Manufacturers of Beekeepers' Supplies. Onsted, Michigan

SEEDS AND TREES

SEEDS OF HONEY PLANTS. Ask for free catalogue. Melvin Pellett, Atlantic, Iowa.

SWEET POTATO PLANTS, Nancy Hall—Porto Rico. Send no money—pay when received. Cultivating guide included with each order. 300-$0.95; 500-$1.25; 1000-$2.25; 2000-$4.40; 3000-$6.45; 10,000 and over, $2.00 per 1000. Belew Plant Farm, Sharon, Tennessee.

DAIRY GOATS

CASH FROM SPARE TIME—Operate goat dairy. Magazine tells how; trial 6-mos. 25c. Dairy Goat Journal, Columbia, B2, Mo.

MISCELLANEOUS

RANCH MAGAZINE—Do you find it difficult to secure information about sheep and sheep ranching methods The SHEEP AND GOAT RAISER reaches more sheepmen with more information of range sheep than any magazine published. Subscription $1.00. Hotel Cactus, San Angelo, Texas.

KNOW interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English, by the Phupen Apiaries (Himalayas), Ramgarh, Dist. Nainital, U. P., India and obtainable from them. Subs. Rs 7/-or 10 Shillings or 2.25 Dollars per annum. Single copy Rs ¼/-s. 1/9 or 49 cents (international money order). Payment in mint postage stamps of your country accepted.

Get Our Quality Queens and Package Bees
—Light Italian Stock

	Queen, each	Bees with queen 2-lb.	3-lb.
1 to 24	$ .80	$2.75	$3.75
25 up	.75	2.50	3.50

No charge for clipping queens. Additional pound bees $1.00
For queenless packages deduct price of queen.
Stock Light Three-Band Italian

B. A. ANDERSON & CO. Opp, Alabama

When You Want QUALITY at LOW COST Look For This Sign

Trade Mk. Reg. U. S. Pat. Off.

BEES AND QUEENS

We are straining out the drones and shipping only young bees. Plenty of open dates. Shipments start April 1st. 3-Banded Italians only.

KELLEY—"The Bee Man"

2 POUND SWARMS YOUNG BEES WITH YOUNG 1950 QUEENS, EACH	$3.00
3 POUND SWARMS YOUNG BEES WITH YOUNG 1950 QUEENS, EACH	4.00
25 AND UP—2 POUND SWARMS WITH QUEEN	$2.75
25 AND UP—3 POUND SWARMS WITH QUEENS	3.75

QUEENS $1.00—10 OR MORE 90 CENTS

WALTER T. KELLEY CO. Box 210, Paducah, Ky.

Better Bred Queens

3-BANDED ITALIANS

•

Bees Bees! Bees! Plenty of bees. We can make prompt shipment on any quantity. Send us your rush orders and be among our many satisfied customers. Our Better Bred Stock has given satisfaction for many years.

2-lb. package with queen, any quantity	$2.50 each
3-lb. package with queen, any quantity	3.40 each
Queens, any quantity	.75 each

•

CALVERT APIARIES
CALVERT, ALABAMA

THE HEART OF THE COMB HONEY IS FOUNDATION —

The biting quality of the honey, that delicate center taste is foundation. It must become a part of the honey, so tender, a touch of the tongue will crumble it; yet be so strong, that bees work it out quickly and easily.

DADANT & SONS, Inc., Hamilton, Illinois

Flowers' Quality Italians

That will stand test for honey gatherers, gentle and prolific. Our motto is to serve you with best young bees and queens money can buy. Ask our customers. State health certificate with each shipment, prompt live delivery guaranteed. Replacement or refund made promptly upon receipt of bad order from your express agent. No orders too large or too small, shipped when wanted, place orders early.

Packages with Young Queens F. O. B.

2-lb. package	$2.50
3-lb. package	3.15
4-lb. package	4.00

Extra queens $1.00 delivered

Flowers Bee Company
JESUP, GEORGIA

GOOD PACKAGES

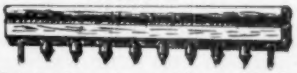
Of nice Young Italian Bees, Worker Bees, not drones, with young queens and shipped on time. May prices:

2-lb. with queen, any number	$2.75
3-lb. with queen, any number	3.50

BENNETT BEE FARMS
1504 N. Main St., Hattiesburg, Mississippi

HERE IS A TOOL that does your spacing, quickly and accurately. There is positively no preliminary handspacing needed. Whether you have to space one super or a thousand you need only one pair of the new HAARMANN'S FRAMESPACER

Pat. Pend.



Made in all popular, special or combination of sizes. Ask for information and prices.

HARRY M. HAARMANN,
1967 W. Lake Avenue, Glenview, Illinois

ROOT BEE SUPPLIES

HONEY CONTAINERS AND PACKERS SUPPLIES
Prompt Service

Michigan Bee & Farm Supply
BOX 7 LANSING, MICHIGAN

ITALIAN BEES AND QUEENS

Book your orders early, to get pick of dates. Health certificate, and live delivery guaranteed.

PACKAGES WITH QUEENS

	2-lb.	3-lb.	Queens
1 to 49	$2.50	$3.45	$ .75
50 to 100	2.40	3.25	.70
100-up	2.35	3.15	.65

Homan Bros.
RT. 2 SHANNON, MISS.

ITALIAN QUEENS—BEES

Queens $1.00; 2-lb. $3.35; 3-lb. $4.35
Stock of 250 up to 300 lbs. average production. Drones for mating come from similar colonies. Any amount. Inspection certificate. Will accept as down payment water white honey on bees or queens to ship this spring when you want them.

HOMER W. RICHARD
1411 Champnolle, El Dorado, Arkansas

Thrifty Bees

Combless

packages and queens

THREE-BANDED ITALIANS ONLY

•

Prices quoted are for shipment May 10th to June 1st.

Packages include an untested queen

	2-lb.	3-lb.	Untested Queens
1 to 24	$3.00	$3.70	$ .85
25 to 99	2.75	3.40	.80
100 up	2.50	3.15	.75

For queenless packages deduct 75c from above prices.

•

REMEMBER—

THRIFTY BEES are GUARANTEED to PLEASE

We offer you—light weight shipping crates, full weight packages, good service and first quality bees.

W. J. FOREHAND & SONS

FORT DEPOSIT, ALA.

Breeders Since 1892

KOEHNEN'S

Package Bees and Queens

For Quality and Service

KOEHNEN'S APIARIES

GLENN, CALIFORNIA

Package Bees—Queens

Italians Caucasians

It usually pays to buy quality products. This is especially true in buying queens and package bees. Also be sure and buy where you will get delivery as booked.

•

Weaver Apiaries

Navasota, Texas

AUSTRALIAN BEEKEEPING NEWS

The Leading Bee Journal of Southern Hemisphere is the

AUSTRALASIAN BEEKEEPER

Subscription 8 shillings per year, start any time. Enquire for international money order for 8 shillings (Australian) at your Post Office. Write now to The Editor P. O. Box 20, West Maitland, New South Wales, Australia

3-Way Italian Hybrid Combination

High Production

Resistance to the Foulbroods

Uniform Colony Performance

Quantity	Queens	May 20	2-lb.	3-lb.
1- 24	$1.40	$1.25	$3.75	$4.75
25- 99	1.30	1.15	3.50	4.50
100-999	1.20	1.05	3.25	4.25
1000 up	1.15	1.00	3.00	4.00

SERVICE QUALITY DEPENDABILITY

WICHT APIARIES

406 MILLER STREET

Stock of DADANT & SONS reared under ideal conditions by WICHT APIARIES

For additional bees add $1.00 per lb. For our own reliable 3-Banded Italian bees reduce each item listed at left 25 cents. Deduct 25c from the prices of packages May 20.

Hattiesburg, Miss.

Do You Know

That Woodman manufactures NINE different sizes and styles of Honey Extractors — Vane lifter type Honey Pumps—Automatic Pump Control Tanks—Brand Capping Melters and Power Uncappers. Many thousands of Bee Smokers, Bee Veils, Bee Gloves, numerous tools and other equipment. Send for printed matter, over 350 listings.

A. G. WOODMAN CO.

Grand Rapids, Michigan, U. S. A.

CELLULO All-Purpose HONEY FILTERS

Used with CELLULO FILTER PAPERS

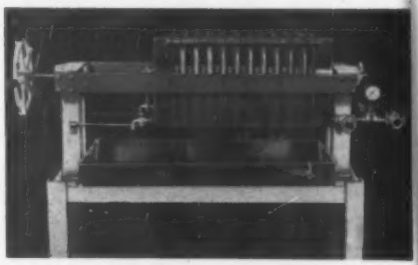
EASY, POSITIVE

ECONOMICAL

FILTERING

•

Helps step up the value of your product. Assures uniformity of color, flavor, clarity and body.



Most efficient all-purpose honey filter. For all capacities up to 60 pound per minute. Simple, compact, easy to operate. For best results use with Cellulo Filter-Papers. Available in various sizes to fit your production requirement. Write for folder on "The Role of the Honey Bee."

FREE

Write for instructive folder on HONEY FILTERING. No obligation

THE CELLULO CO., SANDUSKY, OHIO

Manufacturers of Filters and Filter Papers since 1919

IN HEAT OR COLD THE CRIMPS WILL HOLD

AN ADEQUATE SUPPLY OF

Dadant's Crimp-Wired Foundation

will assure you fine combs. You are protected too when you know it is made of pure beeswax.

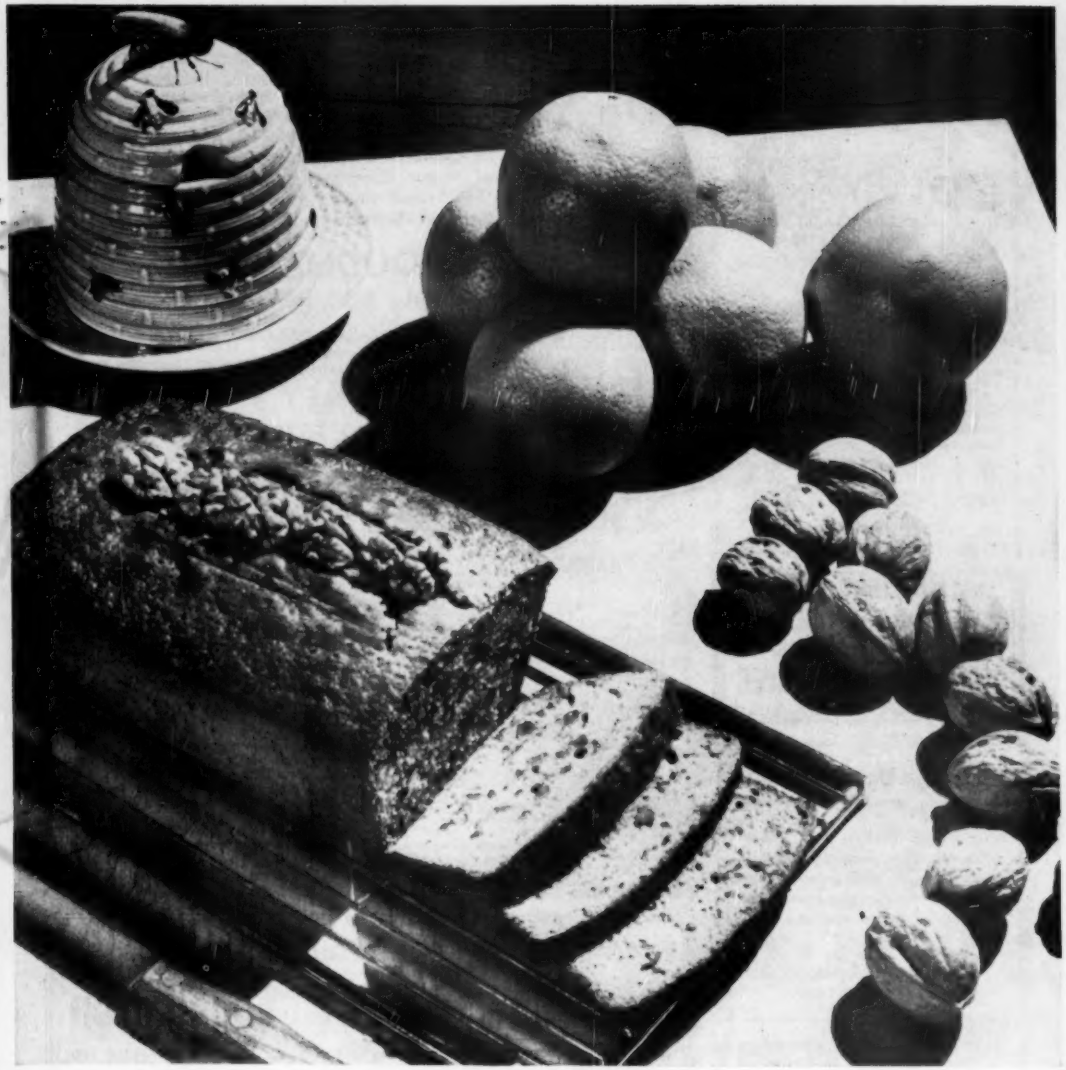
DADANT & SONS, Inc., Manufacturers

Hamilton, Illinois

Renew Your Subscription

If you wish to buy or sell, use American Bee Journal ads

Departments



ORANGE NUT BREAD

2 tablespoons shortening
1 cup honey
1 egg
1½ tablespoon grated orange rind
¾ cup orange juice
2¼ cups flour
2½ teaspoons baking powder
⅛ teaspoon soda
½ teaspoon salt
¾ cup chopped nut meats

Cream the shortening and honey well. Add the beaten egg and orange rind. Sift the dry ingredients and add alternately with orange juice. Add chopped nuts. Pour into greased loaf pan, the bottom of which has been lined with waxed paper. Bake at 325 F. for 1 hour or until the loaf is nicely browned and begins to shrink from the pan. Yield: 1 loaf.

American Honey Institute

May—the month of flowers, sunshine, and honey bees. This is the month that everybody likes . . . . it's warm, but not too warm, and the sun comes out from behind those April shower clouds. The days are as golden as honey, and everyone seems happy and healthy. This is the month that beekeepers really get busy . . . . and it's time to start thinking about marketing the honey that's being produced.

You can market your honey more effectively and sell it more quickly when you have selling aids— the pamphlets that the Honey Institute makes available to you. There is no profit made on these booklets.

There's a pamphlet among the long list that is certain to appeal to you and suit your need.

"New Favorite Honey Recipes" is a delightful book just bursting with new ideas for the use of honey. One of the outstanding recipes that it contains is the "Fruited Honey Wedding Cake." This is certainly appropriate for the month of June when the air is thick with wedding bells and rice.

The cost of this attractive, plastic-bound recipe book is just 25 cents, or $5 for 25 copies.

The companion book to the "New Favorites" is the **"Old Favorite Honey Recipes."** This is a tested and true book of recipes for every occasion, meal, and need. Its yellow cover will add a cheerful note to any kitchen, and the book, as a whole, will give the housewife a helping hand at all times. This outstanding collection of recipes costs only 10 cents for one copy or $10 for 100 copies. You have to see it to appreciate it.

"Milk and Honey Treasures" is another booklet that merits your attention. After housewives try the recipes that are in this booklet they feel as though they, themselves, are in the "land of milk and honey." It answers that always-important problem, how to use milk so that it tastes good, so that you have something "different."

Now that summer is approaching this would be an especially good booklet because it gives a variety of sundaes that use both honey and milk. . . . .with a wonderful recipe for Honey Ice Cream with Almond Sauce.

Here are some of these mouth-watering ideas. . . . .Golden Honey Floating Island. . . . .South American Sundae . . . . .Honey Cake Sundae . . . . .Banana Sandwich Pudding with Ice Cream. . . . Lemon Egg Nog. . . . Orange Honey Biscuit Ring. Sound good? They are good. And these recipes plus many others can be had for only 10 cents for one booklet— or if you buy in quantity, $5 per 100, or 5 cents each!

Similar to "Milk and Honey Treasures" is the fine booklet, **"Lemons and Honey."** Here you'll find many suggestions for tart lemons and sweet honey. There are such delicacies as Honey Lemon Layer Cake, Lemon Honey Drop Cookies, Lemon Honey Chiffon Pie, and Honey Delight. The cost of this attractive booklet is also 10 cents each or $5 per 100.

Perhaps you're a progressive beekeeper who has realized the market that bakeries provide for honey. If you have, then you're already selling bakers honey in large quantities to make their pastries taste better and retain their moisture longer. The American Honey Institute has a booklet that will provide you with an easy way to gain good will and promote your own product at the same time. It's the booklet **"Honey Specialties for Bakers."** There are large quantity recipes for breads, cakes, cake fillings, icings, flavoring bases for icings and fillings, cooky specialties, making and using fondant, and souffle macaroons. Supply your baker with one of these booklets and watch your own sales zoom as he profits! The cost is 15 cents for one, $15 per 100.

For mass distribution you may want little pamphlets that give several recipes, but are neither as bulky nor as expensive as the booklets. Here, too, the American Honey Institute can help you. They have several attractive pamphlets that are sure to please your customers.

With summer near, you may want to distribute the little recipe card, **"Honey Iced Tea."** The cost is only 25 cents for 100! Or you may prefer the leaflet, "Make Every Meal a Guest Meal with Honey Recipes." There are 10 tested recipes included in it. And the cost is nominal. Just $1 for 100.

Other real ways to stretch your dollar are with the following pamphlets: **"Honey and Cereals,"** $1 for 100; **"Honey to Start the Day Right,"** $1 for 100; **"Two Sweet Gifts, Citrus Fruits and Honey,"** $1 for 100. and **"Honey for Breakfast,"** $1 for 100.

These pamphlets are all easy-to-read and have recipes that are easy to follow. If you want an even less expensive pamphlet, you still have your choice of other Institute publications. There's **"A Honey of a Chocolate Cake,"** 60 cents per 100; **"Honey the Clock Around,"** 80 cents per 100, and **"It's A Honey,"** only 50 cents a hundred.

You can purchase all of the above-mentioned pamphlets by writing to the American Honey Institute, Madison 3, Wisconsin. Delivery is prompt and you can be sure that careful attention will be given to each order.

Some of you may be wondering just what the Honey Institute is, and what it does. A simple answer would be, "It does a lot." The Institute helps you sell your honey. . . . . that's its job and that's what it concentrates on. Last month when Honey for Breakfast Week was held, more than 1500 releases were sent out to newspapers and many hundreds more to radio stations across the country promoting honey and suggesting to the housewife ways in which the product could be used.

As a beekeeper it would pay you to join the American Honey Institute if you have not already done so. It's simple. You merely send a contribution to the American Honey Institute, Madison 3, Wisconsin, and in return receive a membership card, a monthly member's bulletin, and advance knowledge on pamphlets and events that are coming up that will let you prepare your sales program more completely and more easily.

Join the Institute now, and see what it will do for you!

All Around the Bee Yard

G. H. Cale

Sometimes this bee business is a pain in the neck. We have a definite yen to try two-queen colonies for honey production on a larger scale. It is obvious that if the brood nests of both queens are to reach any size by flow time the second queen must be established as early in the season as possible. We do it this way: Colonies are wintered in two hive bodies, the top well filled with pollen and honey (in our case both bodies are Dadant size). In April the brood will be entirely in the upper body. Some of the brood is put into the lower body which is then set above an empty super covered with a double screen frame. A new queen is given the top division, with a front entrance in the screen frame. If this is done by April 10, and the two united at flow time by removing the screen separator and supering above the two bodies, we can get an increase in crop which will average about 75-100 per cent. It is not as much work as it seems.

This year, with continuing cold, backward weather, we did not start two-queening until about April 12 and at this date (April 24) we are still at it.

Those tall stacks must be set firmly or they may topple over. And beware the winds. Saturday night, after making two-queeners at our best outyard, a twister sneaked up on us; leveled some buildings, tore up signs and turned those doubles upside down and all over the yard. See what I mean by a pain in the neck?

Some other theoretical notions come trooping in on the tail of this two-queen business. Talking with some pollinators (beekeepers who use their bees for pollination—you are going to hear a lot about this work from now on) they have the idea that a colony in condition to do well at pollination is not the colony that has been doing well in honey gathering. That the honey-gathering colonies are trained to that job; not to pollination. The old field force just won't change its habits. But a new colony with a new queen and a big brood nest "busting" for pollen for the babies, will train better to pollen carrying. Maybe so. If so, won't the top units of these two queen colonies just fit that bill? By the time clipped red clover, for instance, blooms again in July, usually past most competition with other bloom, these top colonies would be just right to move in for pollination, then we can spray train them, and change their locations about in the field to keep them busy on the clover. During the interval, the top units can be set off the honey producers and the field force dodged in with the honey gatherers. Think we'll try it anyway.

What are we to do about these high express rates on package bees? Southern shippers should be tearing their hair to get the rate down within reason. Packages shipped from Mississippi to Wisconsin cost as high as $1.25 for express. What will the small buyer do at this cost? Likely he will make divides rather than buy packages. What will the larger buyer do? He will be able to get all his packages from a single shipper (note I say a "single shipper"; not as many now do from a number of favored ones) and truck the packages himself. Present figures show that we can save at least half the cost of the present high express rates this way.

Looks like the express revenue would fall way down. When John L. Lewis' miners priced coal off the market, buyers switched to oil to such an extent that now many mines are on short production or closed. If the shippers of package bees and the express companies don't adjust the present rate situation, there may be a lot fewer package shippers in a year or two and someone else will have to pay a still higher express rate to make up the loss to the express companies. Quite a situation. Sad thing is that nobody seems to be doing anything about it. Or are we misinformed?

The price support promise for honey (not yet materialized) has sharply divided beekeepers. Some who have considerable unsold honey think it will be the means of keeping them in business. Those who have sold honey at good prices think price support unwise. They forget that in many cases those satisfactory prices were the direct result of the promised price support. The market toned up rapidly when buyers knew that soon they might have to pay at least 12c to get honey. So they bought what they could at higher prices than they had been offering. Packers of their own honey felt this upward swing too as it reaches way into the retail market.

The worst thing so far has been the lazy and indifferent attitude of producers who are now making no effort whatever to sell, but who wait for Uncle Sam to dole out the 12c. If the final machinery which will implement price support fixes it so honey in storage can not expect pay for a year, under certificate, then the beekeeper will have to sell to the highest bidder or lose out on shoes and groceries.

Some think the industry has joined the "social state" through price support. Truth is that the industry was on the rocks and all agriculture needing pollination was on the rocks with it. Something had to be done to stem the tide and let the beekeeper get on his feet. Or the next crop of kids would not eat as well as we do.

The Federation

Still no announcement from Washington on the price support program. More and more evidence points to the fact that the docket on price support, which officials of the Fruit and Vegetable Branch, Production and Marketing Administration, have had ready for many weeks, is being held up by the Commodity Credit Corporation until Congress grants them an additional 2 billion dollars loaning power. It is reported that the House passed the Bill before taking its Easter vacation, and the Senate Committee on Agriculture and Forestry favorably reported the Bill to the floor of the Senate some time ago. However, the Senate at this writing (April 11, 1950) has not taken action on the Bill, and one source reports that such action may not come until after the House reconvenes on April 18.

In the meantime, the beekeeping industry and the Federation wonder what can be done to bring about an early announcement of the program. We have been reliably informed that there is nothing that can be done. There are some six major commodities also awaiting a decision by the C. C. C. including pork and soy beans. Honey is just one of the minor commodities caught in the log jam of Washington events.

The U. S. Department of Agriculture, however, announced on March 30, a program to assist in expanding honey outlets. This was one of the immediate objectives of the Washington program of the Federation. The annoucement reads as follows:

The U. S. Department of Agriculture announced today a program to encourage both new domestic uses and the exportation of honey. The program is expected to be of value in disposing of the annual honey surplus and in stabilizing returns to beekeepers.

Payments of not more than 4.5 cents per pound will be made to packers who sell honey into diversion outlets at the market price less the amount of the payment. The diversion outlet must be approved by the Department and honey must be employed in the outlet before payment can be claimed. Payments also will be made to exporters of honey. The export rate of payment will be 4.5 cents per pound or 50 percent of the f. a. s. sales price or domestic market price, whichever is lowest. Total export and diversion sales to be approved for payments up to July 1, 1950, are limited to 7 million pounds. Approval will be given for payments on an additional poundage during the last six months of calendar 1950.

Diversion outlets for which payments will be approved will be "new use" outlets. These will include products in which no honey has been used since January 1, 1948, or those products for which manufacturers develop new formulas entailing the increased use of honey.

The export part of the program is designed to assist private traders to sell honey to destinations outside North, Central, and South America. Honeys of certain flavors have customarily found more ready acceptance in the European market than in the domestic.

Details of the program, including application forms, are expected to be available about mid-April and may be obtained at that time from Harold J. Clay, U. S. Department of Agriculture, Fruit and Vegetable Branch, Washington 25, D. C.; R. M. Walker, 2180 Milvia Street, Berkeley, California, or Chester A. Hallnan, Room 620, 90 Church Street, New York 7, N. Y.

The diversion-outlet and export subsidy program can well be a very fine thing for the honey industry if packers, cooperatives, and dealers actively participate in the program. This program holds the possibilities of restoring our export markets and creating new permanent uses for honey in industry. It therefore could be one of the finest things to happen to the honey industry.

Through the efforts of Glenn Jones, secretary-treasurer, attending a series of conferences, the last of which was held at Cedar Rapids, Iowa, March 28, a program of "forage seed conferences" has been established. The Cedar Rapids meeting was sponsored by the Chamber of Commerce, represented by Rex Conn, Keith Noll, Charles Penningroth, Andy Hanson, and Chuck Worcester. Attending this preliminary planning meeting were Dr. Iver Johnson, Iowa State College; Hervey Hazen, State P.M.A. Chairman for Iowa; Virgil Hawk, State Soil Conservation Service; Earl Robinson, Iowa Beekeepers' Association; B. W. Lodwick, Farmers' Home Administration; Earl Smith, The Hamilton Seed Company; Bill Davidson, Iowa Farm Bureau Federation. and Glenn O. Jones, American Beekeeping Federation.

This group concluded that (1) There is a definite need for increased production of most grass and legume seed crops; (2) increased forage seed production is practical and profitable in eastern Iowa; and (3) a full scale promotional effort should be launched to provide educational information and to stimulate interest among farmers in producing more forage seed this year.

The first all-day conference is scheduled for Hawkeye Downs, near Cedar Rapids, starting at 9:30 a. m., Friday, June 2, 1950. There will be top-name speakers on the pollination problem, crop culture, insect control, harvesting, and seed marketing. Extensive publicity is being planned to attract a large group to the meeting. A similar meeting tentatively is being planned for the following day at Atlantic, Iowa, by their Chamber of Commerce. It is hoped that meetings can be scheduled in other areas of Iowa, and that this plan will be adopted by other states.

Ladino Clover in Illinois

Circular 650 of the Department of Agriculture at Champaign, Illinois is entitled "Ladino Clover in Illinois." It is written by R. F. Fuelleman, Professor of Crop Production.

Ladino is well adapted to Illinois conditions and desirable for pasture, hay, green manure and for seed. Supplies of lime, phosphorous and potash of soil should be checked. Recommendations are: use certified seed, plant on a clean seed bed; clip in early June and use bees to insure seed set.

Previews and Events

Eighth Annual Beekeepers Short Course and Training School for State Inspectors

University of Minnesota, University Farm, St. Paul, May 10, 11 and 12

Short Course Program, Wednesday, May 10

8:00—Registration—Fee for course $3.00.
9:15—Background training for beekeeping—R. L. Parker.
10:00—Package bees and their installation—C. D. Floyd.
11:00—Improving the stock, pollen substitutes—M. H. Haydak.

1:30—Value of bees in pollination of plants—M. H. Haydak.
2:30—Bee behavior and apiary management—R. L. Parker.
3:30—Installing package bees. (demonstration in the apiary of installing package bees and of standard practices of handling bees and equipment)—M. H. Haydak, R. L. Parker, C. D. Floyd.

Thursday, May 11

9:00—Swarming and its control—M. H. Haydak.
10.00—Good queens and colony management—R. L. Parker.
11:00—Preparation of honey for retail market—E. J. Dyce.

1:30—Know your honey—M. H. Haydak.
2:30—Some ideas of reducing cost in the apiary—E. J. Dyce.
3:30—Fall management and wintering—M. H. Haydak.

5:30—All gather at University Farm Cafeteria for informal dinner together.

Friday, May 12

9:00—Trends in honey houses, equipment and management—E. J. Dyce.
10:00—Adult bee diseases, enemies, disease transmission, bee poisoning—M. H. Haydak.
11:00—Legal aspects of beekeeping— C. D. Floyd.

1:30—Brood diseases and their control—Thomas Gochnauer.
2:15—Motion pictures in beekeeping—M. H. Haydak.
3:30—Question box.

* * * *

Apiary Inspector's Training School Program

Wednesday, May 10

Room 300, Agricultural Botany Building
8:00—Registration and program announcements—Fee for the course $3.00.
3:30—Remarks—R. A. Trovatten.
4:00—A better coordinated program—T. L. Aamodt.
4:30—Reports from each district covering 1949 inspection program.

Thursday, May 11

8:00—Rearrangement of inspection districts for 1950.
3:30—Bacillus larvae—T. A. Gochnauer.
4:00—New legislation, honey house inspection—C. D. Floyd.

Friday, May 12

8:00—Inspection records, field techniques.
1:30—Program planning, distribution of supplies, and so forth.

Shelby County Beekeepers Assn. Germantown, May 5

During the month of March, Shelby County (Tenn.) beekeepers met and organized the new Shelby County Beekeepers Association. The officers are: Mays Evans, President; H. T. Ward, Vice-Pres.; and R. Madison, Sec'y-Treas. Leon Harris, deputy state apiarist, was guest speaker at this meeting. Mr. W. D. Taylor was the oldest person to join, and Tommie Rahm the youngest. The next meeting will be May 5 at 8 P. M.

H. T. Ward, Vice-Pres.

Short Course, Ames, May 9-10

The annual short course for beekeepers will be held at Ames, Iowa, May 9 and 10 in Room 206 of the Memorial Union Building. Guest speakers will include Dr. E. J. Dyce, Roy Grout, Frank Pellett, and Glenn Jones. The local staff will complete an unusually strong program for beekeepers. Everyone is cordially invited to participate.

F. B. Paddock, Extension Apiarist.

Tazewell County Beekeepers Assn. Peoria, May 14

We invite all beekeepers and their friends to attend the outdoor meeting on Sunday, May 14 at 12.00 P. M. to be held at the home of the secretary, Joseph Jachman, 500 Swords Ave., Peoria. The program will include: installation of package bees, grafting of queen cells, a broadcast by radio station WMBD, a picnic lunch, movies, etc.

Attendance prizes will be awarded and a regular meeting will be held with election of officers and payment of dues.

Joseph Jachman, Sec'y.

Western Missouri Beekeepers Assn. Kansas City, May 14

The May meeting will be held on Sunday, May 14 at 2:30 P. M. at 812 Westport Road, Kansas City. Mr. Martin Chaisson, city forester, will speak on planting trees and the effect of poison sprays.

New officers of the state association include Mr. W. F. Matthes of Pleasant Hill, Mo., President, and H. J. Schaffer of Kansas City, Vice-President. The Western Missouri association is planning a joint meeting with the state association on June 11 at the home of Mr. Matthes.

Beatrice Schaffer, Sec'y-Treas.

Campbell County Beekeepers Assn. Rustburg, May 16

An organization meeting will be held in the County building in Rustburg, Virginia, May 16 at 1:30 P. M.

M. D. Myers, Jr.

Washington County Beekeepers Assn. Forest Grove, May 28

Washington County Association, a branch of the Oregon State Beekeepers Association, will hold its fourth annual summer picnic at the home of the President, Joe Mohorich on Sunday, May 28. This is at the north city limits of Forest Grove, Wilhelmina Ave. There will be a pot luck dinner with coffee and refreshments furnished. The 4-H Club will give a demonstration and bee supplies will be auctioned. Bring your donation. There will be a good program with prominent speakers.

J. Oren Kane, Sec'y-Treas.

Westchester County, N. Y. New Rochelle, May 21

The Westchester County Beekeepers' Association will hold its regular monthly meeting at 2:30 P. M. on Sunday, May 21, 1950, at the Odd Fellows Hall, 20 Lockwood Avenue, New Rochelle, N. Y.

B. F. Miller, Publicity.

Cuyahoga County Beekeepers' Assn. Medina, Ohio, May 28

The spring meeting of the association will be held on Sunday, May 28 at 2 P. M. at the grounds of the A. I. Root Co., Medina, Ohio. The Root Co. will act as hosts and refreshments will be served.

Speakers will be Mrs. Harriett M. Grace, Director of the American Honey Institute and Helen Robertson, Household Economics Editor of the Cleveland Plain Dealer.

Dr. E. E. King, Pres.

Dr. P. N. Annand Passes Away

Funeral Services for Dr. P. N. Annand, chief of the Bureau of Entomology and Plant Quarantine, were held April 1 at Arlington, Virginia. He had been head of the bureau since 1941. His notable contributions to insect control marked him as an outstanding scientist.

Crop and Market

M. G. Dadant

Condition of Bees

As most of our readers realize, the season has been backward throughout practically the entire country. Even in the southern regions which started out quite rapidly with a warm spell, colder weather later on compensated for the earlier warmth. In most northern regions, conditions are similar except that there has really been no warm spell up to April 20, and the bees have had practically no opportunity of gathering pollen. On the whole, however, condition of bees throughout the entire country is quite satisfactory. Most bees went into winter with plenty of stores and the winter has not been extremely cold. There is an exception, however, in the extreme eastern prairie provinces of Canada and extending down into the states of Montana, North Dakota, northern Minnesota, and Wisconsin. Here the long spell of winter and heavy winds have in many cases made quite heavy losses. However, the condition of bees as of April 20 is approximate and normal except for a heavy consumption of stores caused by the comparatively moderate weather and the quite warm weather in the South followed by a spell when there was no opportunity of gathering nectar. Bees will have to be watched from now on for stores, in order to keep them going until spring blooms open in earnest.

Honey Plants

Honey plants are in excellent condition throughout practically all of the country. The heavy freeze in southern areas has meant a spoilage of the early bloom and perhaps some deterioration of the colonies, although this has only been temporary. There has been some inclination of heaving of clovers in some northern areas on account of the intermittent freezing and thawing. We do not believe, however, that this has been very serious.

There is no doubt a great deal more acreage in legumes this year than in several years past, and the orange flow promises well both in Florida and in California. In fact, some of our very latest reports indicate that the Florida flow will be extremely good, and California expects at least normal.

Western Colorado, Oklahoma and some sections of the intermountain territory have been dry and more rain is needed, although late reports indicate that rains have fallen. The California situation and much of the intermountain situation also is dependent upon irrigation and the mountain snows have not been as heavy as in recent years. This may call for a deterioration later on in the season owing to a shortage of irrigation water.

Pollination Calls

In the northeastern sections of the country, the pollination calls are about as usual mostly for fruit bloom, although there has been some call in New York, Pennsylvania and other eastern areas for bees for pollination of bird's-foot trefoil. In the Southeast, no great amount of call except a little additional for crimson clover and lespedeza. It is hard to judge just now whether or not the pollination demand is going to be heavily increased, because many farmers apparently are waiting until the legumes are about to bloom before making or trying to make any arrangements with the beekeeper. Then in most cases, it will be too late.

Throughout the entire central and western half of the country, we find a very great increase in the calls for pollination. In fact, there are not enough bees in many areas to meet the pollination needs even though farmers in many instances are more willing to pay a rental for bees. However, in those areas where there have been examples of big yields of 4 bushel or more per acre on red clover or other clovers, on account of the coverage by colonies of bees, the demand has come forward quite rapidly. Many parts of Texas are now wanting bees badly for the vetch, and western areas later will want them for alfalfa. The call has increased in the intermountain areas where there are alfalfa seeding sections and we learn that in northern California and stretching into Washington, there has developed a relatively high demand for bees for pollination of ladino clover. The clover, of course, is still very greatly in demand on account of its highly nutritive value and the fact that it carries through the summer with a minimum of loss. Ladino, we should observe, is bound to cut a big figure in the permanent pastures which are coming forward at a rapid rate.

Honey Wanted— Cars and less than car. TOP PRICES
C. W. AEPPLER CO., OCONOMOWOC, WIS.

Beekeepers Holding Honey

Very few beekeepers in the northeast section and southeast section are holding honey in anticipation of the promulgation of support prices. In fact, we might well state that honey is pretty well cleared up except for what may be in the hands of packers and what is in the hands of beekeepers waiting for an opportunity of an advanced price under price support. These beekeepers and these packers are largely in the central and western areas and in many cases we learn of a beekeeper having his entire crop on hand while his neighbors around him have disposed of all of their honey and are buying to sell again.

On the whole, we do not believe the amount of honey compared to the total crop of last year plus the carryover, is as great as it was a year ago, and that much of this is voluntarily being held on hand with the possibility of an appreciation on account of government action. This applies particularly to white honey. Amber apparently is in much better supply and thus more difficult to dispose of. It is to be hoped that the government in their plans for a subsidy on exported honey will take this into consideration.

Mr. and Mrs. Pellett (Photo by O. W. Park)

The Postscript

Frank C. Pellett

Fifty years ago a Dr. Brown, of Augusta, Georgia, wrote that honey mixed with a little flour is one of the best applications for boils, wounds, scalds, and burns. In literature of days gone by, we find so many references to honey for burns that it seems a bit surprising that beekeepers have forgotten its value in the medical field. There is also an occasional recommendation for its use in the treatment of wounds or open sores. It would seem to be a safe dressing where a soothing antiseptic is needed.

In a recent bulletin of the Royal Horticultural Society of England, is an account of more than a dozen species of linden or basswood trees. It is stated that the bloom of individual trees lasts only two weeks but the honeyflow comes during the first seven days. By planting several different varieties with overlapping blooming time it is possible to secure a continuous supply of nectar from June 10 until about July 25. We have long wished to see such a planting in this country as a demonstration of the things which can be done in the way of improving bee pasture.

The newest member of the editorial staff of the American Bee Journal is Adelaide Dadant Fraser. It is the first time in 75 years that a woman's name has appeared as an editor of this publication. In 1875, Ellen S. Tupper became widely known as joint editor of the first magazine devoted to beekeeping in the English language. Mrs. Tupper was rather a contributing editor than an active one since she lived at a distance from the office of publication.

Only a few women have become prominent in the beekeeping world. Mrs. Tupper was one of the first. Later Mathilda Chandler, of Wisconsin, became well known as a honey producer, as did Emma Wilson as assistant to Doctor Miller. Miss R. B. Pettit gave up a position as teacher in a woman's college to take up beekeeping and Iona Fowls served as editor of Gleanings for a time. The fact that so few of them have given all their time to the bees has served to call special attention to those who have done so.

Mrs. Fraser holds a very important place on the staff. Hers is the difficult job of putting the material together to make a finished magazine.

Every month she has numerous decisions to make. Always there are more articles and more items than can possibly go in. When she has reached the limit of fifty pages, anything left over must wait for a later issue when it must face the same kind of competition. She and the other editors must decide which manuscripts are likely to interest the greatest number of readers; what news items are most important or most timely, and what is most suitable for a particular place in the magazine. Considering the hundreds of details that must be met with every issue, the managing editor has no easy job.

The native elderberry should be of real interest to the fruit grower even though our common northern species yields only pollen for the bees. I have a letter from a man in New York who tells of making jam and jelly from the fruit on a large scale. He mentions a firm which buys about a million pounds of the fruit annually. I look for the day to come when elderberries become important to the fruit grower. There are reports also that the beemen get honey from the southern elder in Florida. I would like very much to get more information concerning it. How much honey does it yield, and what is the quality?

From the Florida Grower, we learn that Frank A. Robinson has been named to the staff of the Florida Experiment Station for the study of bee pasture. He thus becomes the first to take up research with honey plants as his primary duty in connection with a state experiment station. It is a virgin field with so much to be done that opportunities are unlimited. He is further favored by working in a mild climate where so great a variety of plants can be grown. Success to the new field of activity.

In the days before perfumes were commonly offered for sale in the stores, our grandmothers put sprigs of lavender away with their laces and so-called fancy work. Now lavender is grown in large acreage for distillation to secure the oil for manufacture of commercial perfumes. Near Olympia, Washington, I had the pleasure of visiting an extensive lavender field last July when it was in bloom. R. R. Rudd, of Tacoma, who has bees near that field sends me a sample of lavender honey. It is light amber in color and of delicious flavor, hard to describe.

Pat. Appld. For

Ventilated Covers

Ventilated covers are a fundamental improvement. It is no longer necessary to bore holes in your hives in the fall nor to stagger your supers in the summer. These covers keep the inside of your hives dry in the winter and cool in the summer.

5 Complete Hives as pictured $26.50

CORRECTION Last month we switched our plates with Gleanings and the price of these hives was listed as $22.50 which was an error, that price being that of our wood covered hives.

If you have not received our big 64 page catalogue write for it today. Learn more about these new covers, how to produce and market comb honey without sections and how to save money on all of your equipment.

We list many items not found in other supply catalogues

The Walter T. Kelley Co. Paducah, Ky.

INSURE YOUR HONEY CROP BY USING

Berry's Old Reliable Italian Bees & Queens

THE BEST STRAIN TO BE HAD

We shipped 10,000 packages with queens in 1949 and had not ONE complaint as to supersedure and ABSOLUTELY NONE relative to NOSEMA. Our honest opinion for HEALTH and HONEY PRODUCTION our strain of Italian bees are unsurpassed. Fifty-five years of selective breeding counts.

PRICES—PACKAGE BEES WITH QUEENS AND INDIVIDUAL QUEENS

Quantity	Queens	2-lb. Pkgs.	3-lb. Pkgs.	4-lb. Pkgs.	5-lb. Pkgs.
1 to 50	75c	$2.75	$3.65	$4.65	$5.65
51 to 100	65c	2.50	3.35	4.35	5.35
100 up	55c	2.25	3.00	4.00	5.00

For price of queenless packages deduct price of queens.

Remember our package bees are 90% YOUNG BABY BEES and all queens we ship 1950 production and warranted purely mated. Both bees and queens are guaranteed to be THE BEST REGARDLESS OF PRICE.

Shipments by Express or if preferred we LOAD YOUR TRUCKS.

M. C. BERRY & SONS : Box 684 : Montgomery, Ala.

OLDEST ACTIVE PACKAGE SHIPPER SOUTH

UNIVERSITY MICROFILMS
313 NORTH FIRST STREET
ANN ARBOR MICHIGAN
DEC 50

RIGHT DOWN THE LINE

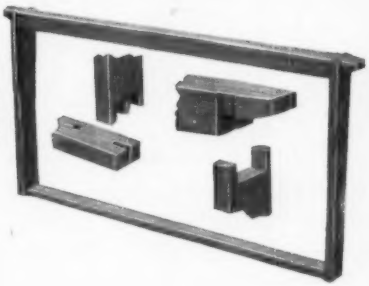
It's ROOT *Quality* Bee Supplies for

- Dependability
- Years of Service
- Complete Line
- Guaranteed Satisfaction

- Hives
- Metal Covers
- Bottom Boards
- Full Depth Supers
- Shallow Supers
- Comb Honey Supers

The Famous Root Triple-Locked Frame

A synthetic resin glue is now available for those who do not care to nail—long recognized as the world's strongest frame.



Root Smoker

Offered in four sizes to fit every need. Built for a lifetime.

Root Veils

If bees were getting through last year, better have a new one—See page 18—Root Catalog.

• • AND INTRODUCING SEVERAL NEW ITEMS FOR 1950

- KILLION COMB HONEY SUPER
- "WYRLESS" 3-PLY FOUNDATION

—See Your Nearest Root Dealer Soon—

THE A. I. ROOT CO.

MEDINA, OHIO